Criterion 3 – Research, Innovations and Extension

Key Indicator 3.2: Innovation Ecosystem

3.2.1:Institution has created an ecosystem for innovations, Indian Knowledge System (IKS),including awareness about IPR, establishment of IPR cell, Incubation centre and other initiatives for the creation and transfer of knowledge/technology and the outcomes of the same are evident.

Index

GURU NANAK DEV ENGINEERING COLLEGE BIDAR

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Mailoor Road Bidar-585403, Karnataka, India

Date: 22.09.2022

Department of Research & Development

All the departments are requested to note the list of various government funding agencies to secure grants in different fields of Engineering.

S.No	Funding Agency	Remark
1	All India Council for Technical Education	Central Govt
2	Department of Science and Technology	Central Govt.
3	Department of Atomic Energy	Central Govt.
4	National Science Foundation	Central Govt.
5	Department of Biotechnology	Central Govt.
6	Ministry of Environment, Forest and Climate Change	Central Govt.
7	Ministry of New and Renewable Energy	Central Govt.
8	Council of Scientific & Industrial Research	Central Govt.
9	Ministry of Electronics and Information Technology	Central Govt.
10	Indian Council of Agricultural Research	Central Govt.
11	Science and Engineering Research Board	Central Govt.
12	Vision group of Science and Technology	Karnataka State Govt
13	VTU – Research Grant Scheme	Karnataka State Govt
14	Karnataka State Council for Science and Technology	Karnataka State Govt
15	New Age Innovation Network	Karnataka State Govt

Dean R&D

Dr. Pradeep Kumar Singa
Dean (R&D)
Guru Nanak Dev Engineering College
BIDAR-585 403 (K.S)

Principal

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Department of Research & Development

CIRCULAR

Date: 18/10/2022

All the final year students of Civil Engineering Department are requested to attend the session on **"Importance of Final Year Project in R&D"** scheduled on 22/10/2022 in mini-auditorium at 10.00 am.

DrPradeep Kumar Singa
Dean – R & D

HOD(Civil Engg.)

HOD
Department Of Civil Engineering
GNDEC-BIDAR.

Principal

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Mailoor Road Bidar-585403, Karnataka, India

A

Report on

"Importance of Final Year Project in R&D"

Organized by

"Department of Research & Development"

On

DATE: 22/10/2022

PRINCIPAL
Guru Nanak Dev Engg. College, Bidar

Title- "Importance of Final Year Project in R&D"

Date: 22/10/22

Time of event:10:00 am to 11.00 am,

Event Type: Offline

IOM/Circular:Circular is attached

Objective of Program:

- To educate students about etiquettes in Final year project and R&D

Resource Person:

Name:DrPradeep Kumar Singa

Designation: Associate Professor and Dean R&D

Organization:GNDEC Bidar

Profile of Resource person:

Pradeep Kumar Singa obtained his Ph.D. (Civil Engineering) in 2019 from UniversitiTeknologi PETRONAS, Malaysia (UTP). He is recipient of UTP Scholarship to complete his Ph.D studies starting from Jan 2016 to October 2019.He has more than 13 years of experience in academic institutions including industries. Currently, he serves as Associate Professor and Dean - Research & Development and institute level NIRF and AISHE coordinator at **Guru Nanak Dev Engineering College, Bidar**.He is teaching different courses which include Water Supply Engineering, Water Resources Engineering, Hazardous Waste Management and Disposal, Wastewater Engineering, Sustainable Development for Engineers, Wastewater Treatment for Oil and Gas Industries, *etc*.

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Details of Program:

The session was conducted to final year students of civil engineering. The contents of the final year project thesis were discussed with examples of each chapter. Framing of title of the project, literature review, methodology and results and discussion were discussed in detail. Finally, drafting of research article from the thesis was discussed and importance of publishing the work in good journals was highlighted in the session.

Program Outcome:
Students were in position to understand the key inputs given to them to conduct the project and draft the thesis and research article.

Number of Students participated:76

Glimpse of event:

Photo Gallery:

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DEPARTMENT OF CIVIL ENGINEERING

TITLE OF EVENT: Importance of Final Year Project in R&D

Attendance report

Sl.No	Name of the Students	USN
1	AISHWARYA	3GN19CV004
2	ABHISHEK	3GN20CV001
3	ABHISHEK	3GN20CV002
4	ADITYA BIRADAR	3GN20CV003
5	ADNAN SAMEE	3GN20CV004
6	AKASH	3GN20CV005
7	AKASH	3GN20CV006
8	AKASH	3GN20CV007
9	AMAN YASEEN IFTEQAAR	3GN20CV008
10	ANKIT DANGE	3GN20CV009
11	ANVIT KUMAR VARMA	3GN20CV010
12	ARIF KHAN	3GN20CV011
13	ARJUN	3GN20CV012
14	BALAJI	3GN20CV013
15	BASAVA PRASAD	3GN20CV014
16	DEEKSHA	3GN20CV015
17	GANGASHREE.K.	3GN20CV019
18	GOUSSUDDIN	3GN20CV020
19	KUPENDRA N	3GN20CV021
20	MAHESH GOND	3GN20CV022
21	MD ABDUL ZAYEEM SHAH	3GN20CV023
22	MD ABDULLA	3GN20CV024
23	MD AL ZUBAIR BAGWAN	3GN20CV025
24	MD AMAN	3GN20CV026
25	MD HUZAIFA AAQIL	3GN20CV027
26	MD KAIF MALIKHMUKH	3GN20CV028
27	MD MOINUDDIN BURHAN	3GN20CV029
28	MD MUSTAFA KHAN	3GN20CV030
29	MD NUMAN PASHA	3GN20CV031
30	MD UMAR SERIKAR	3GN20CV032
31	MD WASEEM AHMED	3GN20CV033
32	MIR AHOOR ALI KHAN	3GN20CV034
33	MOHAMMED AMEER KAMAL QIZAR	3GN20CV035
34	MOHAMMED SUFIYAN ADNAN	3GN20CV036
35	MOHAMMED UZAIR AHMED	3GN20CV037
36	MOHD ABRARUDDIN S	3GN20CV038
37	MOHD BILAL	3GN20CV039
38	MOHD FAIZANUDDIN	3GN20CV040
39	M.S.ZAHIDULLA	3GN20CV041
40	MUKTA RANI	3GN20CV042

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41	NIKHIL PATIL	3GN20CV043
42	NIVARTI	3GN20CV044
43	OMAR HARIS	3GN20CV045
44	OMKAR	3GN20CV046
45	PAVAN T.R.	3GN20CV047
46	POOJA MAMUDIGI	3GN20CV048
47	PRAGNYA A.S.	3GN20CV049
48	SAINATH	3GN20CV051
49	SANDHYARANI	3GN20CV052
50	SANJANA BAMBARY	3GN20CV053
51	SANSKAR VANKUDRE	3GN20CV054
52	SANTOSHKUMAR	3GN20CV055
53	SHAIK SOHAIL HAMED	3GN20CV056
54	SIVASHARANAYYA	3GN20CV057
55	SHUSHMA	3GN20CV058
56	SOUMYA	3GN20CV059
57	STUTI	3GN20CV060
58	SURESH	3GN20CV061
59	SYED NASSER ALI	3GN20CV063
60	TILAKJEET	3GN20CV064
61	UMRA INAMDAR	3GN20CV066
62	VIJAYLAXMI TOKARE	3GN20CV068
63	VISHNU PATIL	3GN20CV069
64	AJAY WESLEY	3GN21CV400
65	AMAR	3GN21CV403
66	AMBIKA	3GN21CV404
67	ASLAM PASHA	3GN21CV406
68	MAHAMAD AKBAR	3GN21CV407
69	NAGRAJ	3GN21CV408
70	PAWAN	3GN21CV409
71	PRANESH	3GN21CV410
72	SATYANARAYAN	3GN21CV411
73	SHUBHAM	3GN21CV412
74	AKASH	3GN21CV401
75	AKASH	3GN21CV402
76	AMARPALI	3GN21CV405

Co-ordinator

HoD

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PREDICTING HEALTH INSURANCE COST USING MACHINE LEARNING REGRESSION MODELS

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Guru Nanak Dev Engineering College, Bidar, Karnataka, India.

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ABSTRACT

Insurance is a policy that eliminates or decreases loss costs occurred by various risks. Various factors influence the cost of insurance. These considerations contribute to the insurance policy formulation. Machine learning (ML) for the insurance industry sector can make the wording of insurance policies more efficient. This study demonstrates how different models of regression can forecast insurance costs. And we will compare the results of models, for example, Multiple Linear Regression, Generalized Additive Model, Support Vector Machine, Random Forest Regressor, CART, XGBoost, k-Nearest Neighbors, Stochastic Gradient Boosting, and Deep Neural Network. This paper offers the best approach to the Stochastic Gradient Boosting model .

Keywords: Insurance, regression, machine learning, k-Nearest, gradient boosting.

1. INTRODUCTION

The main aim of this paper is to identify or predict the nearest value of the health insurances of the citizens based on the collected data. This model ensures the predicted amount for the health insurance gives maximum accuracy to the people by implementing various different algorithms.+Health insurance is a necessity nowadays, and almost every individual is linked with a government or private health insurance company. Factors determining the amount of insurance vary from company to company. Also people in rural areas are unaware of the fact that the government of India provide free health insurance to those below poverty line. It is very complex method and some rural people either buy some private health insurance or do not invest money in health insurance at all. Apart from this people can be fooled easily about the amount of the insurance and may unnecessarily buy some expensive health insurance. Our paper does not give the exact amount required for any health insurance company but gives enough idea about the amount associated with an individual for his/her own health insurance.

2. METHODOLOGY

Below listed are the different regression models which are used

Multiple Linear Regression, Decision Tree Regression,Gradient Boosting Regression.

2.1 Multiple Linear Regression

Multiple linear regression (MLR), also known simply as multiple regression, is a statistical technique that uses several explanatory variables to predict the outcome of a response variable. Multiple regression is an extension of linear (OLS) regression that uses just one explanatory variable

Regression allows you to estimate how a dependent variable changes as the independent variable(s) change. Multiple linear regression is used to estimate the relationship between two or more independent variables and one dependent variable

2.2 Decision Tree Regression

Decision Tree is one of the most commonly used, practical approaches for supervised learning. It can be used to solve both Regression and Classification tasks with the latter being put more into practical application.

It is a tree-structured classifier with three types of nodes. The Root Node is the initial node which represents the entire sample and may get split further into further nodes. The **Interior Nodes** represent the features of a data set and the branches represent the decision rules. Finally, the Leaf Nodes represent the outcome. This algorithm is very useful for solving decision-related problems

2.3 Gradient Boosting Regression

It is one of the most powerful algorithms in the field of machine learning. Unlike, boosting algorithm, the base estimator in the gradient boosting algorithm cannot be mentioned by us.The base estimator for the Gradient Boost algorithm is fixed and i.e. Decision Stump. Like, AdaBoost, we can tune the n_estimator of the gradient boosting algorithm. However, if we do not mention the value of n_estimator, the default value of n_estimator for this algorithm is 100

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Verilog Implementation of Hamming Code for Error Control Coding

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Corresponding Author: M A Muneeb

Abstract
This paper generally introduces to the method that is used for error control coding and particularly about Hamming Codes. Theoretical generation of codes is done using the formula and hardware implementation is done in Verilog (Hardware Description Language) using Xilinx Vivado Design Suite. Waveforms are given in which the code generation can be seen.

Keywords: *Error Control Coding, Hamming Code, VLSI, Encryption, Verilog.*

Date of Submission: 28-12-2021 Date of acceptance: 07-01-2022

I. INTRODUCTION

As we all are moving towards globalization of technology where dependency of human beings on technology keeps increasing day by day. The advancements in the technology brings all of us on a single platform i.e., Internet. Communication is made easy with the help of Internet and multimedia. The information can be shared by anyone and can be accessed from different parts of the world immediately and easily, one of the most important thing to be kept in mind is the proper transmission of information. Cyber theft is increasing and different ways to hack and crack the digital systems are made, so there is a need for encryption and decryption techniques to properly transmit data from transmitter to receiver. In digital Communication, Error Control Coding is the most effective way for encrypting the data for proper transmission.

II. ERROR CONTROL CODING

In the world of computing and communication, an error correction code (ECC) is employed for controlling errors in data over unreliable or noisy communication channels. The main idea is that the sender encodes the message with redundant information within the sort of an ECC. The added codewords allows the receiver to detect a limited number of errors which will occur within the message, and sometimes to correct these errors without the need of retransmission. The American mathematician R. Hamming explored this field within the 1940s and invented the error-correcting code in 1950: the Hamming (7,4) code.

ECC contrasts with error detection there in errors that are encountered are often corrected, not simply detected. The advantage is that a system using ECC doesn't require a reverse channel to request retransmission of data when a mistake occurs. ECC is designed in such a way that it adds redundancy to the transmitted information using an algorithm. A redundant bit could also be a mixed function of the many original information bits.

ECC is generally classified into two categories: Block codes and Convolutional codes.

Block codes work on fixed-size blocks (packets) of bits or symbols of predetermined size. Practical block codes can generally be hard-decoded in polynomial time to their block length.

Convolutional codes work on bit or symbol streams of arbitrary length. They are most frequently soft decoded with the Viterbi algorithm, though other algorithms are sometimes used.

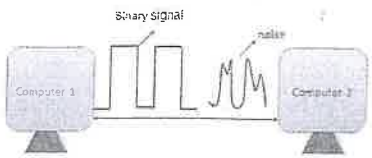

Fig.: Introduction of noise during transmission

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Implementation of Social Distancing Detection and Alerting System Using Artificial Intelligence

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ABSTRACT
The COVID-19 pandemic forced governments across the world to impose lockdowns to prevent virus transmissions. This resulted in the shutdown of all economic activity and accordingly the production at manufacturing plants across most sectors was halted. While there is an urgency to resume production, there is an even greater need to ensure the safety of the workforce. Reports indicate that maintaining social distancing at work clearly reduces the risk of transmission. We decided to use computer vision to monitor activity and detect violations which trigger real time alerts and mail with violation photos attached to concerned authority regarding rules violation as evidence.
The adoption of public health-informed hygienic practices can have a large impact on community transmission of COVID-19. This paper proposes a practical deep learning computer vision framework methodology for social distancing detection for detection and tracking of people in public spaces . The detection tool was developed to alert people to maintain a safe distance with each other by evaluating a video feed. The video frame from the camera was used as input, and the open-source object detection pre-trained model based on the YOLOv3 algorithm was employed for pedestrian detection.

KEYWORDS: *Covid-19, Social distancing, Opencv, Python, Computer vision, YOLOv3, Haar Cascade Object Detector*

Date of Submission: 21-08-2021 Date of acceptance: 05-09-2021

I. INTRODUCTION

Over time and space, technology is widely spreading across the world. It is used to facilitate our living skills in our daily life. Technology has been around surveillance systems for decades. In recent years, video-surveillance systems have become a main interest in people's life such as government agencies, business, and private possessions. Nowadays, people seek for better image quality, less in cost, better in size and scalability. For safety issues, cameras can monitor real-time occurrences, collect data, and come out with analyzing the behavior of people. Monitoring is often performed through consecutive frames which are extracted from the video.To take advantage of video surveillance, it is an essential thing to propose an algorithm that is simple and fast to detect human activities. It's an approach that combines the needs of the market and the simplicity.The major idea of this is to suggest a sufficient algorithm that deals with analyzing the content of a video to classify events between normal and abnormal ones, using a simple software algorithm.According to data obtained by the World Health Organization, the global pandemic of COVID-19 has severely impacted the world and has now infected more than eight million people worldwide. Following safe social distancing is one of the enhanced safety protocols need to be followed in public places in order to prevent the spread of the virus .To create safe environment that contributes to public safety in colleges and Schools , we propose an efficient computer vision based approach focused on the real-time automated monitoring of people to detect social distancing in public places by implementing the model to monitor activity and detect violations through camera. We have chosen our university a place to test our results in. We aim to solve this issue in order to be aware of anything that could happen to provide the safety due to Covid-19 pandemic, so we need to avoid social gatherings.

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IIoT BASED ROBOT TO AVOID OBSTACLES

By

VEERENDRA DAKULAGI *

NANDINI **

NEHA ***

MAHANANDA ****

*-**** Department of Electronics and Communication Engineering, Guru Nanak Dev Engineering College, Bidar, Karnataka, India.

Date Received: 16/07/2021 Date Revised: 24/09/2021 Date Accepted: 25/11/2021

ABSTRACT

Robot has adequate artificial intelligence to cover the most extreme region of given space. Determining the location of obstacles and avoiding them can be seen as a central issue in planning versatile robots. The task in this paper is to execute straightforward sensors and engines and build up a self-sufficient robot. The challenge is to design a self-explored basic robot utilizing a servo engine couple of DC engines and IR handset. This innovation will allow robots to navigate in new conditions without harming themselves with the help of sensors installed in them. The obstacle avoidance robot are designed in such a way that it can identify snags in its way and move around them without making any crash. This robot is designed with an Arduino Microcontroller and utilizes two ultrasonic sensors to recognize obstacle. The Arduino board was chosen as the microcontroller stage, and its product partner, Arduino Software, was used to complete the programming. The use of two ultrasonic sensors provides higher accuracy in detecting surrounding obstacles. As a fully self-driving robot, it can move efficiently even in dark environments without stumbling against any objects. All the components used in this proposed prototype is widely available and economical, which allows the robot to be manufactured in large scale effectively.

Keywords: Arduino Board, IIoT, Robot, Ultrasonic, DC Engines, Microcontroller.

INTRODUCTION

Obstacle avoidance refers to the task of reaching a destination while adhering to non-intersection and non-collision limitations. It is a hot topic in unmanned aerial vehicles (Al-Aubidy et al., 2016; Catarinucci et al., 2015). What makes the obstacle avoidance idea so important in this field is the growing need for unmanned aerial vehicles in urban areas, particularly for military applications where they can be quite effective in city wars (Amendola et al., 2014). Obstacle avoidance is commonly distinguished from route planning in that the former is typically implemented as a reactive control rule, whilst the latter entails the pre-computation of an obstacle-free path along which a controller will then guide a robot. Obstacle avoidance is one of the most crucial features of mobile robotics; without it, robot movement would be limited and unstable. The publication by Patil and Iyer (2017) illustrates how ultrasonic sensors can be used to avoid obstacles. This paper also includes a dynamic steering algorithm that assures the robot does not have to stop in front of an obstacle, allowing it to move in an unfamiliar environment without colliding.

Many sectors now use robots because of their high level of performance and reliability, which is a huge benefit to humans. Obstacle avoidance robotics is used to detect and avoid collisions with obstructions (Mahadevaswamy, 2018; Sali & Parvathi, 2017), while building an obstacle avoidance robot requires the integration of various sensors according to their tasks.

This paper has objectives related to SDG

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2016-19 (3)

Palmprint Identification for Biometric System

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Abstract— **Multibiometrics can give higher recognizable proof exactness than single biometrics, so it is more reasonable for some genuine individual recognizable proof applications that need exclusive expectation security. Among different biometrics advances, palmprint ID has gotten much consideration on account of its great execution. Joining the left and right palmprint pictures to perform multibiometrics is anything but difficult to actualize and can get better outcomes. In any case, past examinations did not investigate this issue top to bottom. In this work, we proposed a novel system to perform multibiometrics by thoroughly joining the left and right palmprint pictures. This structure coordinated three sorts of scores created from the left and right palmprint pictures to perform coordinating score-level combination. The initial two sorts of scores were, individually, produced from the left and right palmprint pictures and can be gotten by any palmprint recognizable proof technique, though the third sort of score was acquired utilizing a particular calculation proposed in this work. As the proposed calculation precisely takes the idea of the left furthermore, right palmprint pictures into account, it can legitimately misuse the likeness of the left and right palmprints of a similar subject. In addition, the proposed weighted combination plot permitted consummate ID execution to be acquired in examination with past palmprint ID techniques.**

Keywords—Palmprint Recognition,Biometrics,Security.

I. INTRODUCTION

Biometrics is mechanized systems for seeing a man in light of a physiological or lead trademark. Among the features assessed are; stand up to, novel finger impression, hand geometry, iris, retinal, stamp, and voice. Biometric headways are transforming into the foundation of an expansive show of exceedingly secure unmistakable confirmation and individual check plans. As the level of security bursts and trade coercion constructs, the necessity for significantly secure conspicuous evidence and individual affirmation progressions is getting the opportunity to be clear.

Biometric-based game plans can suit mystery money related trades and individual data security. The necessity for biometrics can be found in chose, state and neighborhood governments, in the military, and in business applications. Undertaking wide framework security establishments, government IDs, secure electronic setting aside extra cash, contributing and other budgetary trades, retail bargains, law usage, and prosperity and social organizations are starting at now benefitting by these progressions.

Palmprint recognizing confirmation is a basic individual unmistakable verification development and it have pull within greatly thought. The palmprint contain regular twists and wrinkle and in addition rich arrangement and miniscule centers, so the palmprint conspicuous confirmation be able to accomplish a elevated precision because of open prosperous information in palmprint. Distinctive palmprint conspicuous verification method, for instance, code base procedures and lead twist systems, contain be projected in ancient times decades. Not with standing these procedures, subspace based systems can in like manner perform well for palmprint conspicuous confirmation.

II. RELATED WORK

A biometric structure is fundamentally an illustration affirmation system which makes an individual distinctive evidence by choosing the realness of a exact physiological or social trademark controlled by the customer in this paper [1]. Biometric have expanded greatly thought within the safety globe starting late. Various sorts of individual distinctive verification systems have been made and palmprint affirmation is one of the creating headways in perspective of its relentless, exceptional characteristics, low-esteem get device, brisk execution speed moreover it gives a far reaching an area to feature extraction. Palmprint sees a man in light of the essential outline, wrinkle and edges scheduled the exterior of the palm. The affirmation system includes picture acquiring, preprocessing, characteristic removal, organizing and happen. The dissimilar systems be use designed for the preprocessing, characteristic removal, classifiers. The strategies discuss be designed for the online palmprint affirmation.

In the biometric family, palm print based affirmation system has wound up one of the dynamic examination subjects. In this paper [2], the unmistakable confirmation method involves picture acquiring, preprocessing, feature extraction and planning with the database. Palm print affirmation being one of the broadly used biometric affirmation system there are various procedures and computations open to complete it. A comparable examination

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International Journal of Research Publication and Reviews

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COVID-19 FUTURE FORECASTING USING SUPERVISED MACHINE LEARNING ALGORITHMS .

DR DHANANJAY MAKTEDAR, SUDHA RAJKUMAR, SHREYA N CHALWA, SHILPA RANI, SHIVAGANGA MANTOLE.

ABSTRACT

This study bespeak the ability of ML models to prognosticate the number of forthcoming patients affected by COVID-19 which is presently considered as a major harm to the humans.

In consideration three major ML models have been used in this study those are mainly Linear Regression (LR), Support Vector Machine (SVM), K-nearest neighbors (KNN) for forecasting the threatening elements of COVID-19.

In this study three various predictions are made such as the number of deaths, number of recovered patients, number of new cases.

This study is the day-wise analysis.

1.Introduction

COVID-19 pandemic as well-known has caused health crisis globally, the essential and preventive ways are face mask wearing in the mostly crowded places and even while stepping out of house for any work, sanitizing frequently, social distancing as directed by world health organization(WHO). Due to pandemic Government were forced to impose lockdown to hinder the transmission of virus. The effective and economic approach of AI being used is to generate an environment that is safe in the society of human.

Forecasting is one of the most significant areas of ML, many ML algorithms that are standard have been used within this area for guiding the future course of actions which are needed in numerous applications such as disease prognosis.

2. Literature Survey

- This is the state-of-art of ML regression models which are supervised.
- Linear regression, Support vector machine, K nearest neighbors models.
- These learning models are trained by the covid-19 patient stats dataset.
- Preprocessed dataset is mainly split into two subsets 75% is recorded by training set and 25% is recorded by testing set.

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RESTAURANT FEEDBACK SCORING SYSTEM BASED ON FACIAL EXPRESSION RECOGNITION

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Abstract - *The popularity of mechanized as well as unmanned restaurants has extended. Because of the nonattendance of employees, there is no instant view of consumer's imitation to discover what their encounter through the restaurant idea resembles. For this motive, this undertaking presents a score tructure reliant on outward appearance acknowledgment through pre-prepared convolution neural network (CNN) models. For intuitive person as well as PC edge (HCI) it is noteworthy to the PC grasp external appearance of person. Through HCI the gap amongst PCs as well as people resolve diminishes. The PCs can interface in more suitable manner through people via making a decision about their appearance. There be dissimilar measures for outward look acknowledgment which center around receiving immense consequences of person articulations as well as later the food must censure. currently, three articulation (fulfilled, impartial and frustrated) are specified via the scoring framework.*

Key Words: **Facial Expression Recognition, Convolution Neural Network (CNN), Restaurant Feedback, Google Rating, Capturing Facial**

1. INTRODUCTION

Human outward appearance is very essential in social rrespondence. Frequently correspondence include together verbal as well as nonverbal. Non-verbal correspondences are communicated during outward appearance. Face appearances be delicate signs of better correspondence. Non-verbal correspondence implies correspondence amongst human as well as creature through eye to eye link, movement, external appearance, non-verbal communication, plus paralanguage. Eye to eye link is noteworthy era of correspondence which give the grouping of thought. Eye to eye link control the pledge, conversation as well as makes a link through others. Face looks integrate the beam, dismal, anger, nauseate, upset, as well as fear. A beam on human face shows their satisfaction plus it communicate eye through a bended form. The pitiful expression is proclivity of aloofness which is ordinarily communicate as increasing biased eyebrows as well as glower. The displeasure on human face is recognized through horrendous plus bothering circumstances. The statement of outrage is communicated through crushed eyebrows, thin as well as extended eyelids. The nauseate articulations be communicated through pull down eyebrows as well as wrinkled nose. The astonishment or stun articulation is communicated when some unpredicted occur. This is communicated through eye-broadening plus mouth expanding plus this articulation is an effortlessly recognized one. The statement of dread is connected through shock articulation which is communicated as increasing biased eyebrows. FER have the noteworthy phase is comprise removal as well as order. Highlight removal incorporate two sorts plus they be numerical base as well as appearance based. The alliance is likewise one of significant series in which before mention articulations, for instance, beam, dismal, anger, nauseate, upset, plus fear be ordered. The mathematically base constituent removal involve eye, mouth, nose, eyebrow, other facial segment as well as the appearance base element extraction contain the precise part of the face.

1.1 RELATED WORK

Part Based Face Detection model incorporate kernel SVMs utilized as part identifier as well as LDA is received to consolidate the consequences of the past part locator. This method for face discovery accomplished superior execution when divergent through others when utilizing just pieces of face as opposed to utilize the entire face. It was not plan to manage face through obstruction. Kiyoto Ichikawa, et al., has concocted another process of face recognition which depends on incomplete statistics to incorporate AdaBoost policy as well as used to prepare the machine through pictures of fractional appearance plus LDA. Choice tree structure is furthermore attuned to join yield of entire unfinished classifiers to separate the eventual outcome. The fractional statistics incorporate highlights about particular highlights of face, for instance, eyes, as well as lips. Regardless of whether any of these part be impeded the presentation of this tactic didn't corrupt. This methodology won't be viable when applied to other sort of impediment. In excess, Huang, et al., encompass proposed a part base system for summed up face arrangement. Yang, et al., encompass proposed a face live-ness recognition tactic through segment subordinate descriptor as well as Zhang, et al., encompass proposed a face discovery method reliant on neighborhood district inadequate coding, as well as so on In spite of fact to all around existing part based face discovery strategy

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Medical-Advisor Android Application

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Abstract- **Health is a major concern and an affective factor in everyone's life. Therefore, since technology and smart solutions are changing the prospective of a lot of concepts as well as changing the method of accessing solutions, there is a significant growth in health based applications. The main purpose of this mobile application is to develop an android app about the health advisor. This app gives you timely advices on a healthy lifestyle, apart from advices it keeps a track on the nearby healthcare centers using your current location by using GPS (Global Positioning System). It also consist of general health questionnaire (GHQ) which helps you keep a track in your lifestyle.**

Index terms- **Smart Solution, Android, general health Questionnaire, Global Positioning System**

I.INTRODUCTION

Smart.phone era is improving day by day because of the easy usage options, efficiency of the applications. Medical science and technology is no exception, but that they are almost beginning to overlap upon each other and in certain situations even combining with each other to help the end user. This application allows user to get instant supervision on their health issues through an smart health care application online. The application is feed with various symptoms which in long term can cause a disease. Patient can check their medical record Hence, this system provides Quality Health Care to everyone and error free and smooth communication to patients. Mobile technology is also use in hospital management by serving with search hospitals to improve health outcomes and medical scheme efficiency measures. In further sections of this paper we discussed the existing system, and a betterment of the existing system considering the convenience of the doctors and patients (users).Health and a healthy life style is a concern for a variety of communities' clusters, meanwhile, the use of technology in every aspect of life has become an integral part of the day to day life. In this Health of time exhausted in waiting at clinic or hospital for a minor consultation or simple health concerns, thus reducing the presser on health facilities and giving better time slot for other more serious and urgent cases. Moreover, this Medical Advisor App can provide the public with the knowledge of common diseases and also can basic medical advice from accessing the app .A medical advisor provides information for organizations and individuals who need accurate and useful data on medical conditions or specific cases. Careers in this field are available in a variety of settings and usually require a medical degree along with experience in clinical practice. For increased authority, it helps to have a history of publication credits.

II. LITERATURE SURVEY

1. ANDROID APP DEVELOPMENT

Android is an open-source, Linux-based operating system for mobile devices such as smartphones and tablet computers. Android was developed by the Open Handset Alliance, led by Google, and other companies. This tutorial will teach you the basic Android programming and will also take you through some advance concepts related to Android application development.

2. ANDROID MOBILE APPLICATION FOR HOSPITAL EXECUTIVES

Vihitha Nalagatla California State University - San Bernardino."Android Mobile Application For Hospital Executives" is an Android application used for displaying hospital performance metrics on a daily basis. This application allows hospital executives to review and monitor hospital operational data with ease of access and in a portable manner. Thus, reducing the effort of the hospital executives to perform their tasks.

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Farmer Friendly Agribot

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Abstract- *The paper aims on the design, development and the fabrication of the robot which can dig the soil, put the seeds, leveler to close the mud and sprayer to spray water, these whole systems of the robot work with the battery power. More than 40% of the population in the world chooses agriculture as the primary occupation, in recent years the development of the autonomous vehicles in the agriculture has experienced increased interest. The vehicle is controlled by Relay switch through Bluetooth technology using mobile the idea of applying robotics technology in agriculture is very new. In agriculture, the opportunities for robot-enhanced productivity are immense - and the robots are appearing on farms in various guises and in increasing numbers. We can expect the robots performing agricultural operations autonomously such as seed sowing, mud closing and water spraying and security.*

Indexed Terms- Agribot, Audio nano, Bluetooth Module HC-05.

I. INTRODUCTION

Our whole economy is based on agriculture. Agricultural field involves the effective production of food, feed, fiber, and other goods for humans and animals. Also, agriculture includes operations like production of cut flowers, timber, fertilizers, animal hides, leather, and industrial chemicals. Heavy material handling is required in the farming operations. For example, in vegetable cropping, handling of heavy vegetables in organic farming, handling of heavy compost bags. As compared to other fields, globalization and development in agriculture field is less. So, it is necessary to make some advancement in this field. Today's agricultural field demands to find new ways of agricultural operation to improve performance efficiency. In the field of agriculture various problems are faced by the farmers in the operations like seed sowing, pesticide spraying, weeding. Also, the equipment used to perform the operations are very heavy. Due to migration of humans in the cities the labor problem occurs. Nowadays robotics technology plays a paramount role in all sections like medical field, industries and various organizations. In other countries robots are used to perform different operations in the agricultural field. We can make the use of available technologies and the robotics technology in the farming system to reduce the efforts of farmers and also to reduce time, energy and required cost.

In addition, with seed sowing, multipurpose operations such as Leveling & Plugging are also needed. But many problems are faced by farmers during seed sowing operation, like proper adjustment of distance between two crops, distance between two rows. Seed sowing is very basic and paramount operation in the agricultural field.

1.1 Background:

R. Eaton, R. Eaton, J. Katupitiya, S.D. Pathirana (2008), Autonomous farming: Modeling and control of agricultural machinery in a unified framework,15th international conference on mechatronics and machine vision in practice. New Zealand.

Chengliang Liu, Mingjun Wang, and Jun Zhou (2008), coordinating control for an agricultural vehicle with individual wheel speeds and steering angles, IEEE control systems magazine

II. METHODOLOGY

There are various seed sowing methods used for agricultural purposes out of which some are cost

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Voice Controlled Wheelchair for Physically Challenged People

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Abstract- ***This project describes the design of a smart voice-controlled wheelchair for physically challenged people using embedded system. Proposed design is based on voice activation system for physically differently abled persons incorporating manual operation. The voice command is given through a cellular device to wheelchair having Bluetooth and the command is transferred and converted to string by the BT Voice Control for Arduino and is transferred to the Bluetooth Module HC-05 connected to the Arduino board for the control of the Wheelchair. For example, when the user says „Go" then chair will move in forward direction and when he says „Back" then the chair will move in backward direction and similarly „Left", „Right" for rotating it in left and right directions respectively and „Stop" for making it stop. The wheelchair will move according to the command given. This system was designed and developed to support the patient in terms of save cost, time and energy. Ultrasonic sensor is also made a part of the design which helps to detect obstacles lying ahead in the way of the wheelchair that can hinder the passage of the wheelchair.***

Indexed Terms- ***Arduino Uno, Wheelchair, Voice Recognition, Bluetooth Module HC-05***

I. INTRODUCTION

This project is designed as an idea to ease the lives of those among us who are unfortunate enough to have lost the ability to move their legs due to a significant amount of paralysis, accident or due to old age. Many physically disable people usually depend on others in their daily life especially in moving from one place to another. Even by using wheelchair, they need continuously someone to help them in getting the wheelchair moving. Their lives are made difficult by the fact that there is lack of an intuitive control system for their wheelchairs that allows moving independently. This project is based on Voice-controlled Wheelchair design based on mobile platforms, by means of Bluetooth technology, design and implementation of wireless remote-control solutions. The project also incorporates use of ultrasonic sensors to detect obstacles within range of 4 meters and notifies the system and stop the wheelchair till further command. In this work, Smart Wheelchair control using Arduino UNO microcontroller and Bluetooth Module via android application is presented.

II. METHODOLOGY

The Voice commands are given with the help of smart phone. The android phone that is connected through Bluetooth with Bluetooth Module HC-05. The voice command is converted to an array of string and the string is passed to Arduino Uno connected to it. Once the Bluetooth Module receives the message, the command sent will be extracted and executed by the microcontroller attached to it and depending on the commands fed to the Motor Driver, the motors will function accordingly. The system will interpret the commands and control the Wheelchair accordingly via android application. Meanwhile, the ultrasonic sensor works while the circuit is on and it detects the obstacle within a range of 4 meters and makes sure the path has no obstacle. If any obstacle occurs it notifies the Arduino and stops wheelchair till further command is obtained from the use.

A. Components used

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IoT Based Smart Mine Safety System Using Arduino

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ABSTRACT

Now a day's due to global warming and climate changes there are challenging situation in field of coal mine. To reduce the cost and improve the productivity along with product quality the atomization in the field of coal mine is indeed necessary, which will also reduce the mine workers efforts. This paper proposes a design of a Wireless Sensor Network (WSN) with the help of controller which is able to monitor the temperature, humidity, gas, LDR, IR sensors in an underground mine. This system also controls the ventilation demand to mine workers depending upon present climate conditions within the mine field. This system utilizes the low power, cost effective controller a temperature sensor LM35, humidity sensor, IR sensors, gas sensor, LDR sensor for sensing the mine climate parameters and Wi-Fi for remote logging of data at central location to control the climate state with the help of motor and value control circuitry.

Keywords— Internet of things, Thing speak, Arduino, Mine Safety System, Wireless Sensor Network

1. INTRODUCTION

The Internet of Things (IoT), which is just a network of interconnected machines, does not exist. IoT is used for a wide range of purposes. The European Internet of Things Research Cluster lists smart buildings, smart transportation, smart energy, smart business, smart health, and smart environment as crucial IoT technologies. These are all significant IoT application areas. Cloud-based All sensor data collected by IoT is stored in the cloud and is accessible from any web-enabled device. Coal is the most important commodity in the planet. The Earth's natural resources, like petroleum products, enable the production of energy and the satisfaction of specific needs. Coal cannot be widely substituted by people as a source of energy since it is not sustainable, and miners risk their lives working in coal mines where accidents routinely occur. It is tragic that occasionally diggers working in coal mines lose their lives. Accidents in coal mines are primarily caused by out-of-date machinery and wiring, which result in handling errors and the release of hazardous gases. The coalmine safety system was developed as a response to address this problem. All of the data gathered by the sensors we used in our research was fully analysed using the Thinger system. Control may be automated or manually applied.

2. METHODOLOGY

In this proposed system, including the sensor modules and the light-dependent resistor (LDR sensor). All of the sensors are connected to the Arduino Uno via Internet of Things (IoT). The most important parts of this system are the monitoring and regulatory systems. There is a buzzer that goes off whenever the gas level in a coal mine environment increases above a certain threshold. For future analysis and usage, sensor data is sent to the cloud on an ongoing basis. The temperature and humidity of the coal mine are also monitored. The resistance value of an LDR sensor is varied to determine the light's intensity. The led turns on automatically if the LDR sensor detects an obstruction. People are being counted by the infrared sensor. A fire alert notification will appear on the IoT page immediately in the event of a fire. The IoT platform is used to control the entire system. Our widgets in the Internet of Things platform allow us to manually control the buzzer and the led.

3. MODELING AND ANALYSIS

3.1 Arduino UNO

It is an ATmega328P-based microcontroller board. 14 digital input/output pins, six analogue inputs, a 16 MHz ceramic resonator, a reset button and USB connectivity are only some of the features of this device. It comes with everything you need to run the microcontroller, including a USB cord and an AC-to-DC adapter or battery, so you can get started right away.

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ELECTRIC MOTOR POWRED MULTI GRAIN CUTTER

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Abstract - *Agriculture is considered as a foundation of life, since the primary source food and other raw materials is from the agriculture. Agriculture is facing serious challenges like scarcity of agricultural labor, in peak working seasons. Presently, the agricultural industry has come up with vast range of equipments for efficient farming. At the same time, the main drawback is that it is not affordable by farmers with poor economical background. This paper represents the project work carried on development of electric motor powered multigrain cutter. We have planned to develop a compact mechanism for harvesting of crop powered by electric motor so that we can an easily harvest in minimum period of time. This set up is used to cut the multi-crops, which help the small scale formers. . It has cutting blades which cut the crop in a scissoring type of motion .This cutter is been invented because of low cost, high compatibility and use for rough cutting. This harvester might be the solution to the problems faced by a small scale farmer regarding cost and labor implementation.*

Key Words: ***Crop Cutting, Scissoring Action, AC Motor, Blades***

1. INTRODUCTION

We are proposing a Electric Motor Powered multi grain cutter; this machine targets the small scale farmers who have land area of less than 5 acres. This machine is compact and can cut up to two rows of wheat crops, soya and other. It has cutting blades which cut the crop in a scissoring type of motion. It runs on Electric motor of 2HP, this power from motor, is provided through coupling shaft and slider mechanism to the cutter. This compact harvester is manufactured using locally available spare parts and thus, it is easily maintainable.

1.1 Objectives

1. To design and fabricate a low cost multi crop cutting machine: - Based on the need of small farmer a cheapest multi grain cutting machine is developed.

2. To minimize time of harvesting:- As machine will take less time to cut the crop compare to manually work done by labour. So it will reduce the time of harvesting.

3. To minimize the human effort: - the labour if the work is done manually it requires a lot of efforts by the labour and consumes time. By use of this machine, we can reduce the labour required for harvesting.

1.2 LITERATURE SURVEY

Dr. U. V. Kongre and et al Vol. 3, Issue 4 , April 2016;

Harvesting is the important part in the agricultural industry. Modern harvesting technology is increasing day by day. But the cost of the harvesting machines is high. So, these can be only limited and suitable for the farmers having large agricultural land area i.e., more than two hectares. So, the farmers having less cultural area cannot rent (or) buy these harvesters for cutting of crops. So, the main aim of our project is to fabricate "Low Cost Manual Crop Harvesting Machine" which is efficiently suitable for the farmers having less area i.e., less than two hectares for cultivation.

Mr. P. B. Chavan, Mr. D. K. Patil, Mr. D. S. Dhondge

This title presents the concept for design and analysis of crop cutter. The crop cutting is important stage in agriculture field. Currently in India former used conventional method for the crop cutting i.e. the conventional method for crop cutting is as manually cutting using labor but this method is lengthy and time consuming. This project aim is to design and analysis of small field crop cutter machine for small height crop. To analysis cutting roller and horizontal cutting blade by using Pro-e and anises software. The machine consists of petrol engine to operate cutting roller and blade. When compare to manual crop cutting by and this machine has a capacity to cut the crop in faster. This machine to helpful for both the small as well as big farm..

2. METHODOLOGY

It is a Multi Crop Cutter Powered by Electric Motor. This machine is compact and can cut up to two rows of wheat crops, soya and other. It has cutting blades which cut the crop in a scissoring type of motion. It runs on Electric motor of 1HP, this power from motor, is provided through pulley and gear box arrangement to the cutter. When we give electric supply to the electric motor (1H.P 1500 rpm) it starts to transmit the power to the gear box with the help of V-belt, drive power is transmitted to gearbox. As the required rpm at cutter is as less as 200 rpm, spur gearbox is used. Here high torque Johnson type motor is used to collecting the crop cut by cutter blade. One end of this output shaft is connected to slider crank mechanism which converts rotary motion of shaft into reciprocating motion of cutter blade. Reciprocating cutter blade slides over fixed blade and creates scissoring action responsible for cutting the crops.

Framework on Solar Angles to Track Sun Position Using Matlab

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Abstract— This paper revolves around the MATLAB project from which we can calculate the solar angles i.e. solar azimuth angles, solar altitude angles, solar incidence angles of any specific time, date and month in a year. It will also help us to know the position of the sun with maximum radiation from which we know the optimum position of the solar panels for the generation of maximum solar power at any time for any specific locations. We can also compare the solar angles seasonally for any locations.

Keywords: Solar Angles

I. Introduction

Solar energy is an essential source of renewable energy, and its technologies are broadly characterized as either passive solar or active solar depending on how they capture and distribute solar energy or convert it into solar power. In remote areas the sun is a cheap source of electricity because instead of hydraulic generators it uses solar cells to produce electricity. While the output of solar cells depends on the intensity of sunlight and the angle of incidence it means to get maximum efficiency; the solar panels must remain in front of sun during the whole day.

This module includes the simulation for the sun position in sky and the solar angles ray upon the plane of solar module irrespective of the tilt. In this module we have considered the latitude of Bidar, Karnataka i.e., 17.20000 degrees North and study the nature of the sun position throughout the year.

It will help us to track the position of sun on every day, seasonally and monthly basis. Based on monthly and seasonal calculation of different solar panels that are useful to understand solar power generation in that area and exact position of the sun in the sky and also helps to increase efficiency. The amount of the solar radiation incident on a surface is inversely proportional to the value of incidence angle which is defined as the angle between the solar rays and the normal line on the surface. The incidence angle can be calculated by a long equation which depends on several angles. This method also allows us to protect our appliance from excessive solar radiation and can be use in solar protection system in many equatorial countries. At last, these calculations will give us wide range of useful application of these angles but we basically focus on solar power generation.

The photovoltaic module in the market is usually not equipped with solar-tracker to have better performance. Users who buy this module will assign other party to install them at home/industry. Most of the simple installation is by finding the best location and orientation with open and clear sky during the day. And then, the system is installed with a fixed tilt and orientation. However, many systems have been developed to be able for tracking the sun. The common method and more popular for example is by using sensors as a feedback to adjust the orientation of the panel to track the sun, but the problem with this system is when the sky is cloudy or the sun is obscured.

II. Solar Angles

A. Solar Azimuth Angle

Solar Azimuth angle is an angle between Sun beam's and the north axis or south direction. This angle helps in locating the sun's relative position along the local horizon. Azimuth angle is compass direction of sun. In north hemisphere we take it reference from south direction and in south hemisphere we take it reference axis as north axis.

Mathematical expression for azimuth angle is given below;

$$\cos \varphi_s = \sin \delta - \frac{\sin \theta_s - \sin \emptyset}{\cos \theta \cos \emptyset} \quad (1)$$

Where;
φs: azimuth angle
θs: elevation angle
ϕ: local altitude.
θ: solar incidence angle

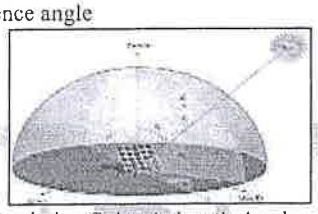

Fig. 2.1: Depicting Solar Azimuth Angle of Sun with Compass Axes

B. Solar Altitude Angle

Solar altitude angle is the angle between sun in the sky and horizon of the earth. It increases with day time as its minimum in morning then attending its highest value in noon, after that it decrease till evening to minimum value. It attains a maximum value in equatorial regions. It changes its value every hour, every day, every month.

Mathematical expression for altitude angle is given below;

$$\sin \alpha = \cos \emptyset \cos \theta \cos h + \sin \emptyset \sin \delta \quad (2)$$

Where;
α: altitude angle
h: hour angle
δ: declination angle
ϕ: local altitude.

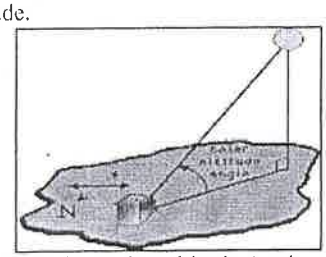

Fig. 2.2: Depicting Solar Altitude Angle of Sun with Horizon

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Design of Buck Boost Converter for Solar Supply using MATLAB SIMULINK

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ABSTRACT- **PV cell is the most basic element of photovoltaic generation which converts solar energy to electrical energy with the help of power electronic converter (Buck Boost onverter) considering the electric behavior of the cell with respect to the environmental parameters which are ambient temperature and irradiation. Power electronics converters are used in solar based applications, the rapid increase in the standalone and grid based structures employ circuit regulation using Buck Boost converter.**

In this paper we are improving the duty cycle of the Buck Boost converter and the efficiency of the 250W solar PV panel, the I-V and PV characteristics of solar panel are analyzed with the help of MATLAB SIMULINK model.

Keywords: **PV panel, DC-DC Buck Boost Converter, MATLAB SIMULINK, I-V and P-V curve.**

I. INTRODUCTION

The photovoltaic model gains a great attention in the last decades as it has not a moving part and produces less pollution to environment. The output characteristic of PV array depends on parameters_radiation intensity and temperature. Increasing the temperature is decreasing the power generated by PV module at MPP. An increase in radiation intensity can cause increase in the generated power at the maximum power point of PV module. The PV cells operate with maximum output power and tracks the maximum output power from PV array. Many different MPPT techniques like incremental conductance are applied to the MPP tracking to control the duty cycle of converter.

DC/DC converters are described as power electronic switching circuits since they convert one form of voltage to other. These may be applicable for conversion of different voltage levels. They either step up by boosting voltage at output known as Boost converter or by stepping down reducing voltage known as Buck converters. Efficiency of converters is about 80-90%. The DC output voltage that appears across the load is an integral value or a fraction of the input voltage which turns out to be equal to the duty cycle. Duty cycle is also defined as ratio of T_{ON}/T, where T is complete time period described by inverse of the operating frequency

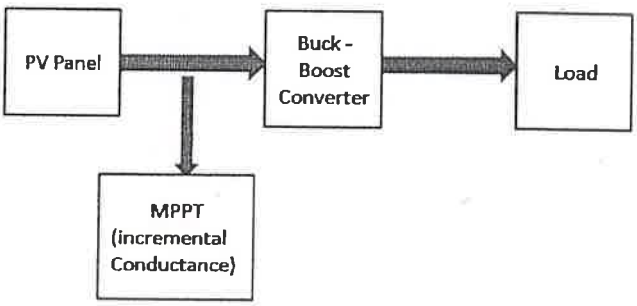

Figure1. Block Diagram for Design of Buck Boost Converter for Solar supply

II. PHOTOVOLTAIC CELL

Photovoltaic cells convert solar radiation directly into DC electrical energy. The basic photovoltaic material for almost all the photovoltaic cells is highly purified silicon which is obtained from sand or quartz. Basically, three types of technology are

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IOT Controlled Water Supply

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Abstract- *The system shown here is IOT (Internet of Things) based solenoid operated valve system which can effectively control the water supply system. The microcontroller is programmed which communicate with IoT protocol and connect with Wi-Fi shield to operate the solenoids at particular areas the control room person has to operate the overall operation using android application from an android mobile. As per the requirement the main pump operates and a microcontroller even turns on the particular area solenoid also, the water now flows through solenoid and supplies the water to particular area. After the required timed operation, the next area solenoid will go to trigger by the same procedure.*

Index Terms- *Internet of Things, Blynk, Node mcu, Wi-Fi shield*

I. INTRODUCTION

Water is a vital resource for life, and its management is a key issue nowadays. Information and communications technology systems for water control are currently facing interoperability problems due to the lack of support of standardization in monitory and control equipment. This problem affects various processes in water management, such as water consumption, distribution, system identification and equipment maintenance. BLYNK is a free platform for connecting your devices to the cloud, designing apps to control and access IoT devices. Based on this standard we propose a smart water management model combining Internet of Things technologies with business processes coordination and decision support systems. We provide an architecture for sub-system interaction and a detailed description of the physical scenario in which we will test our implementation, allowing specific vendor equipment to be manageable and interoperable in the specific context of water management processes.

The Internet of Things (IoT) describes a network of physics objects that connect to each other through the internet. Object or 'thing' can transfer information wirelessly without requiring human interaction. Internet of Things represents a general concept for the ability of network devices to sense and collect data from the world around us, and then share that data across the Internet where it can be processed and utilized for various interesting purposes.

Internet of Things immediately triggers questions around the privacy of personal data. Whether real time information about our physical location or updates about our weight and blood pressure that may be accessible by our health care providers, having new kinds and more detailed data about ourselves streaming over wireless networks and potentially around the world is an obvious concern. Supplying power to this new proliferation of IoT devices and their network connections can be expensive and logistically difficult. Portable devices require batteries that someday must be replaced. Although many mobile devices are optimized for lower power usage, energy costs to keep potentially billions of them running remains high. Numerous corporations and start-up ventures have latched onto the Internet of Things concept looking to take advantage of whatever business opportunities are available. While competition in the market helps lower prices of consumer products, in the worst case it also leads to confusing and inflated claims about what the products do. IOT assumes that the underlying network equipment and related technology can operate semi-intelligent and often automatically. Simply keeping mobile devices connected to the Internet can be difficult enough much less trying to make them smarter. People have diverse needs that require an IoT system to adapt or be configurable for many different situations and preferences. Finally, even with all those challenges overcome, if people become too reliant on this automation and the technology is not highly robust, any technical glitches in the system can cause serious physical and/or financial damage.

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Solar Based Automated Pumping System for Small Fields

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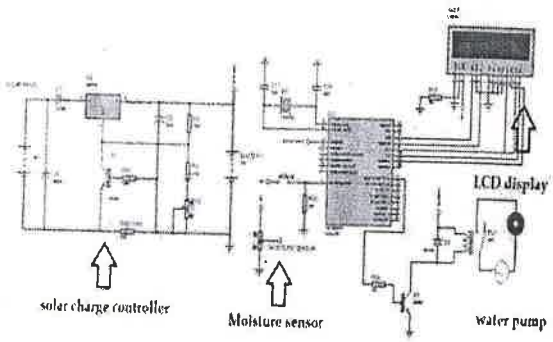
Abstract- **Agriculture for small fields technology is changing rapidly. Farm machinery, farm building and production facilities are constantly being improved. Agriculture for small fields applications which is done by photovoltaic (PV) solutions. These applications are a mix of individual installations and systems installed by utility companies when they have found that a PV solution is the best solution for remote agricultural need such as water pumping for small fields or livestock. A solar powered water pumping system is made up of two basic components. These are PV panels and pumps. The smallest element of a PV panel is the solar cell. Each solar cell has two or more specially prepared layers of semiconductor material that produce direct current (DC) electricity when exposed to light. This DC current is collected by the wiring in the panel. It is then supplied either to a DC pump, which in turn pumps water whenever the sun shines, or stored in batteries for later use by the pump.**

Index terms- SBAPS solar based automatic pumping system, .RES renewable energy sources.

INTRODUCTION

SBAPS is most widely used in agriculture. Agriculture is the major source of income in a country like India. Till today, most of the irrigation systems are operated manually resulting in over irrigation & water wastage most of the times. It is usually designed for ensuring the proper level of water for growing up the small plants all through the season. Even when the farmers are away, these automatic pumping for small fields systems always ensure the proper level of water in the sites. In addition, it provides maximum water usage efficiency by monitoring soil moistures at optimum level. With the development of technology in water saving irrigation and automation, automatic pumping is going to be more popular in the small fields. Thus the problem related to agricultural productivity for small fields, poor performance and decreased availability of water. This problem can be solved by using the automatic pumping for small fields systems.

Circuit diagram:



Explanation of circuit diagram:

Pumping to small fields is nothing but a slow and regular application of water and nutrients moving down drop-by-drop directly to the root zone of the plants through low-discharge emitters and plastic pipes. This irrigation system is today's need of the hour as the natural water resources which are gift to the mankind have become scarce, and that are now not unlimited and free forever. But, the world's water resources are now fast moving back on track. After one completes the study of inter relationship between crops, soil, water and climatic conditions, one will find pumping to small fields system as a suitable system capable of delivering exact quantity of water at the root zone of the plants.

This system ensures that the plants do not endure from the strain or stress of less and over watering. The advantages of using this system are that for every drop of water used, we get more crop, better quality, early maturity, higher yield. Moreover, this system

Design of 50W Solar Inverter for Low Power Applications

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Abstract— Today's electric energy demand is constantly raising and renewable energy resources are declining and are in endanger and also the fossil fuels prices are rising. For all these reasons, the need for alternative energy resources has become necessary and solar in particular has proved to be a very promising alternative because of its easy availability and pollution-free nature. Dueto increasing efficiency, decrease in cost of solar panels and improvement of switching technology used for the power conversion. We are interested in developing an inverter powered by solar panels that could stand alone ac loads. Solar panels produce direct current (dc) and to use them in home and industry appliances we should have ac output at certain required voltage and frequency. Thus solar inverter converts solar energy of sun into useful electrical energy.

Keywords: Solar Panels. Renewable Energy Sources (RES), Solar Inverters

I. INTRODUCTION

Solar cells, also known as photovoltaic (PV) cells, are devices that produce electricity when exposed to sunlight. In the 21st century solar cells are an increasingly attractive energy source considering the problems posed by greenhouse gas emissions and dwindling fossil fuel energy reserves. They are also popular because they are very versatile and can be used on a small scale i.e. on homes.

A Solar inverter [1][2] uses the energy of the Sun instead of regular electrical energy. A solar inverter helps in converting the direct current into alternate current with the help of solar power. Direct power is that power which runs in one direction inside the circuit and helps in supplying current when there is no electricity. Direct currents are used for small appliance like mobile e phones, MP3 players, IPod, calculator etc. The alternate power is generally used for house hold appliances. A solar inverter helps devices that run on DC power to run in AC power so that the user makes use of the AC power. If you are thinking why to use solar inverter instead of the normal electric one then it is because the solar one makes use of the solar energy which is available in abundant from the Sun and is clean and pollution free.

Solar inverters are also termed as photovoltaic (PV) solar inverters. These devices can help you save lot of money. The small-scale grid one have just two components i.e. the panels and inverter while the off grid systems are complicated and consists of batteries which allows users to use appliances during the night when there is no Sunlight available. The solar panel and the batteries that are placed on rooftops attract Sun rays and then convert the Sunlight into electricity. The batteries too grab the extra electricity so that it can then be used to run appliances at night.

II. LITERATURE SURVEY

Due to the increasingly burning energy issues, the world concentrates on giving importance to begin the development of new energy and related technology. At present, large-scale photovoltaic power generation and scale of renewable energy has become important parts of development strategy, meanwhile it is the way to guide the development of photovoltaic industry.

Sun based inverters are composed particularly to deal with photovoltaic (PV) boards, to productively separate the most measure of energy, and to change it legitimately so it can be infused into the matrix. The singularities of the application take into consideration openings that can be abused for better execution. Inverters for PV applications are intended to work at low voltage varieties, nearly at a settled recurrence, and with a power consider normally more prominent than 0.8. While remembering these inverter-particular attributes.

The general framework for producing the vitality from the sun by utilizing sunlight based board in which the general working and thought behind the plan framework was given the point of this work is the advancement of sunlight based photovoltaic era framework in view of a standard power cell for micro grid applications. The proposed framework is fit for giving security of supply by conveying continuous energy to basic loads in independent operation and transitioning flawlessly.

Luis Arnedoet. Al [1] has proposed a work; the point of this work is the advancement of a sunlight based photovoltaic era framework in view of a standard power cell for micro grid applications. The proposed framework is fit for giving security of supply by conveying continuous energy to basic loads in independent operation and transitioning flawlessly between remain solitary and matrix associated mode. To relieve the impact of changeability of the era and load request a best in class 20kWh lithium ion battery is utilized to adjust the power stream in the framework. This paper presents depiction of the equipment, proposed controls procedures and recreation models of the framework.

Yu-Jen Liu et. al. [2] has proposed a Photovoltaic inverter, that is accountable for electric power transformation, is a basic part utilized as a part of sunlight based photovoltaic power frameworks. Many concerns are centered around the operation of photovoltaic inverter because of the more awful outlining may cause the horrible impacts on security, execution and matrix interconnection qualities of sun based photovoltaic power frameworks.

PV grid integration issues and solar generation statics were studied in [7& 8]

III. DESIGN

A. Block Diagram

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Waste Water Treatment Using PLC and SCADA

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Abstract -- The proposed automation solution for waste water treatment plant involves the use of a series of small control systems that run the facility, PLC (Programmable Logic Controller) continuously monitor the operation of pumps, closures and other devices, collect and execute commands coming from the higher levels, while programmable controllers (PLC) are used to control various processes based on the data and the built-in algorithm. According to the given specifications, a control panel was created in a suitable SCADA software for the control and monitoring of waste water treatment, which requires the communication between the SCADA application and local PLC controller is necessary. A program that provides the appropriate behavior of the valve, placed at the entrance and the control of the pumps was written in a ladder diagram. The alarm and monitoring system is of the highest importance. It covers the most significant facilities of the waste water treatment plant having pumping stations, reservoirs and supply lines and shows that the plant as a whole works well. If something unexpected happens – such as a failure or a malfunction of a vital facility – the system should register and alerts the staffs who work there.

Indexed Terms – Supervisory Control and Data Acquisition (SCADA), Programmable Logic Controller (PLC), Inputs/Outputs tags, Programming Interface, Alarms.

I. INTRODUCTION

Everyone generates wastewater. Typical residential water usage is from 75 to 100 gallons per person per day. Seventy-three percent of the population is connected to a centralized (municipal) wastewater collection and treatment system, while the remaining 27percent uses on-site septic systems. Water is not used up. When people are through with water it becomes wastewater—better known as sewage—that must be cleaned up before it is returned to the environment for reuse. In one way or another, all water is recycled. In the past, people had the idea that wastewater was something that could be disposed of—it would just disappear. This idea has caused many people to assume that when they dispose of the wastewater they also dispose of any problems or hazards related to it. Today we recognize that we must recycle water to maintain sustainable supplies of safe drinking water for future generations. In order to clean up or treat wastewater for recycling, it is important to understand what wastewater contains, what problems it may cause, and what it takes to clean it up.

In addition to water that we want to recycle, wastewater contains pathogens (disease organisms), nutrients such as nitrogen and phosphorus, solids, chemicals from cleaners and disinfectants and even hazardous substances.1 Given all of the components of wastewater, it seems fairly obvious that we need to treat wastewater not only to recycle the water and nutrients but also to protect human and environmental health. Many people, however, are not very concerned about wastewater treatment until it hits home. They can ignore it until bacteria or nitrates show up in their drinking water, the lake gets green in the summer and the beach is closed, or the area begins to smell like sewage on warm days. Sometimes residents discover they can't get a building permit or sell their home without a septic inspection or upgrade, or they find out there is no room on their property for a new or replacement septic system. Often when one homeowner has a sewage treatment problem, others in the neighborhood have the same problem. People don't always talk to their neighbors about sewage problems for a variety of reasons, including risk of enforcement actions. Ultimately, people using water are responsible for treating and recycling their own wastewater. As individuals and members of a larger community, everyone must take responsibility for wastewater generated in their community. To protect the health of all, they must make sure that all wastewater is delivered to a good treatment facility.

II. BLOCK DIAGRAM

The block diagram of the overall process is Represented in figure 1

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Fault Detection in Switch Yard and Transmission Lines Using PLC and SCADA

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Abstract *-- Power management is an important constraint in the design of various loads in industries for automation. So if power consumption increases then the substation monitoring is very important for the purpose of controlling the hardware and software optimization with the help of PLC ladder logic system and SCADA were used. This technique in order to reach strong conclusion about their actual impact on the power grid monitoring and control without manpower. The basic idea behind substation control project is to monitor the switchyards in substation. In substation many relays and circuit breakers are used. When any one breaker is trip because of the problems, we can monitor and control through SCADA windows. In power management project, the computer is used for assigning the priority for various loads. The signals are given to the computer of the electricity board where there is the electronic control unit which controls the sequence of disconnecting the load. On basis of controls from the computer the breakers are managed and in computer the SCADA system is installed which is used for monitoring and control. If there any problem occurs in plant, we can easily identify which part is trip. After that we can troubleshoot the problem through manpower and monitor the substation.*

I. INTRODUCTION

In power distribution system, transmission lines are the most imperative part, as they play a key role in the transmission of power from generating station to load centers. Transmission lines function at distinctive voltage levels from 69kV to 765kV, and firmly interconnected for consistent operation. Various factors akin to de-regulated market environment, right of way, economics, environmental and clearance necessities have forced utilities to operate transmission lines near to operating limits. It is necessary to detect the faults; otherwise it will cause disturbances in the system which further led to extensive outages in the firmly interconnected system working within its limits. The design of transmission protection systems is in such a way so as to locate the fault location and segregate only the faulted part. It is a very challenging task to identify and isolate the faults in order to have a very reliable transmission line protection.

Most of power distribution or utility companies rely on manual labor to perform the distribution tasks like interrupting the power to loads & all parameter hourly checking. SCADA implementation in distribution reduces the manual labor operation & cost. The PLC & SCADA allows detecting the exact location of fault & without waiting SCADA.

II. FAULTS

- Faults:

Electrical fault is the deviation of voltages and currents from nominal values or states. Under normal operating conditions, power system equipment or lines carry normal voltages and currents which results in a safer operation of the system. But when fault occurs, it causes excessively high currents to flow which causes the damage to equipment and devices. Fault detection and analysis is necessary to select or design suitable switchgear equipment, electromechanical relays, circuit breakers and other protection devices.

- Types of faults:

There are mainly two types of faults in the electrical power system. Those are as following:

I. Symmetrical
II. Unsymmetrical faults.

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PLANT DISEASE DETECTION USING MACHINE LEARNING

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Abstract: Plant is exposed to many attacks from various micro-organism, bacterial disease and pests. The symptoms of the attacks are usually distinguished through the leaves, stem or fruit inspection. Disease that are commonly attack plants are Powdery Mildew and Leaf Blight and it may cause severe damaged if not controlled in early stages. Image processing has widely being used for identification, detection, grading and quality inspection in the agriculture field. Detection and identification disease of a plant is very important especially, in producing a high-quality fruit. Leaves of a plant can be used to determine the health status of that plant. The objective of this work is to develop a system that capable to detect and identify the type of disease based on Blobs Detection and Statistical Analysis. A total 45 sample leaves images from different colour and type were used and the accuracy is analysed. The Blobs Detection technique are used to detect the healthiness of plant leaves. While Statistical Analysis is used by calculating the Standard Deviation and Mean value to identify the type disease. Result is compared with manual inspection and it is found that the system has 86% in accuracy compared to manual detection process.

I. INTRODUCTION

The use of technology in the detection and analysis process increases the accuracy and reliability of these processes. For example, the people who use the latest technology to analyze the diseases that arise unexpectedly are at a higher chance of controlling them than those that do not. In the recent occurrence of coronavirus, the world relied on the latest technology to develop preventive measures that have helped reduce the rate at which the disease is transmitted. Crop diseases are a significant threat to human existence because they are likely to lead to droughts and famines. They also cause substantial losses in cases where farming is done for commercial purposes. The use of computer vision (CV) and machine learning (ML) could improve the detection and fighting of diseases. Computer vision is a form of artificial intelligence (AI) that involves using computers to understand and identify objects. It is primarily applied in testing drivers, parking, and driving of self-driven vehicles and now in medical processes to detect and analyze objects. Computer vision helps increase the accuracy of disease protection in plants, making it easy to have food security.

II. LITERATURE SURVEY

Paper [1] presents classification and detection techniques that can be used for plant leaf disease classification. Here preprocess is done before feature extraction. RGB images are converted into white and then converted into grey level image to extract the image of vein from each leaf. Then basic Morphological functions are applied on the image. Then the image is converted into binary image. After that if binary pixel value is 0 its converted to corresponding RGB image value. Finally by using pearson correlation and Dominating feature set and Naïve Bayesian classifier disease is detected.

The paper [2] presents the technique of detecting jute plant disease using image processing. Image is captured and then it is realized to match the size of the image to be stored in the database. Then the image is enhanced in quality and noises are removed. Hue based segmentation is applied on the image with customized thresholding formula. Then the image is converted into HSV from RGB as it helps extracting region of interest. This approach proposed can significantly support detecting stem oriented diseases for jute plant.

Guru Nanak Dev Engineering College Bidar

(Affiliated to Visvesvaraya Technological University, Belagavi & Approved by AICTE New Delhi)

NATIONAL BOARD OF ACCREDITATION

Regulations for Research Promotion

Department of R&D

This document contains rules, regulations and policies to be referred by Research Scholars, Supervisors, Faculty Members and Research Centre's to promote research in the institute and guidelines for scholars to have smooth Ph.D. journey.

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4/3/2023

1. Objectives

1.1 To promote research and inculcate research culture.

1.2 To increase the number of publications in peer reviewed journals and enhance the quality of research.

1.3 To enhance financial support from various funding agencies

1.4 To promote interdisciplinary research activities.

2. Guidelines for Research Centre

2.1 Notifications of various funding agencies should be tracked by Head and coordinator of the respective Research Centre (RC).

2.2 HOD must ensure that at least one proposal is submitted by the department for each notification.

2.3 Identify thrust areas and form inter/intra departmental groups to work in these areas.

2.4 Head of RC shall ensure that faculty members in the level of Associate Professor and Professor should publish at least one paper in peer reviewed journal (Scopus/SCI indexed) per year. Assistant Professor should publish at least one UGC/Scopus indexed paper per year. (Preferably having first or second author – Refer Table 1 for prize)

2.5 A database of the papers published in the journals and conferences should be maintained in the department by coordinator.

2.6 Half yearly progress review meetings by the doctoral review committee should be conducted once in every six months compulsorily, preferably within the dates prescribed by the university and copy of the proceedings along with attendance of all the members to be submitted to Dean.

2.7 All the documents and communications by the research scholars with the college and affiliated university should be maintained in the RC.

2.8 Have to maintain register to record attendance of the scholars during their visit to RC.

2.9 RC should ensure that internal research scholars (Faculty members) having registration in institutes other than GNDEC should mention the GNDEC affiliation compulsorily in all the publications.

2.10 To create awareness about research etiquettes and to keep faculty members updated, respective RC shall organize at least one Seminar/FDP/Workshop/Guest lecture every semester and report of the same to be submitted to Dean.

2.11 All the research supervisors and Heads of RC should ensure that their scholars are paying the tuition fee on time else RC will be held responsible.

2.12 Comprehensive viva voce/ final defense should be scheduled with the consent of Dean R&D.

2.13 Thesis should be checked for plagiarism before submission to the university. A copy of the same to be retained in the RC.

2.14 It is strictly advised that all R&D related activities need to have approval of Dean R&D before being forwarded to Principal.

Table 1: Cash Prize for Publication in Peer Reviewed Journals

S.No.	Publication	Author	Cash Prize	Remark
1	SCI Indexed	First	10,000/-	Q1 Journals only
		First	8,000/-	Q2/Q3 Journals only
		Second	5,000/-	Q1/Q2/Q3 Journals only
2	Patent - Grant	First	10,000/-	-
		Second	5000/-	-
3	Scopus	First	2000/-	Unpaid Journals only

Note – GNDECB affiliation in publication/patent is mandatory to claim the prize.

3. Guidelines for Research scholars (General)

3.1 The deadlines as laid by the affiliating university for coursework, comprehensive viva-voce, and synopsis and thesis submission are to be strictly adhered.

3.2 No request for extension of any of these deadlines will be entertained except for the genuine reasons and is completely at the discretion of the Principal, GNDECB.

PRINCIPAL

3.3 The research scholar is expected to assist the supervisor to submit minimum of one research proposal for funding during his/her Ph.D. tenure, preferably after completion of the comprehensive viva.

3.4 It is mandatory that, scholar shall publish at least two papers (listed in Scopus/WoS) to seek approval for thesis submission from the institution.

3.5 It is strictly advised NOT to publish research data in any of the non-indexed journals.

3.6 Internal research scholars (Faculty members) having registrations in other institutions should compulsorily mention the GNDECB affiliation in all the publications.

3.7 All the documents seeking the approval/signature of the Principal should have covering letter addressed to the Principal, duly signed by supervisor, HOD and Dean. Further a copy of all such communications is to be submitted to RC and Dean R&D.

3.8 All the communications to VTU or any other organizations should have a covering letter addressed to concerned authority duly endorsed by the Principal.

3.9 All the presentations (DRC, Comprehensive Viva, Open seminar, colloquium) will be held on-campus (offline) vide VTU circular dated 18/Jan/2023.

3.10 Tuition fee structure for all the scholars remains same as mentioned in the circular dated 19/Nov/2020. Non-compliance with the fee calls for penalty.

3.11 Any scholar wants to discontinue the course should complete all the formalities else strict action will be taken.

4. Guidelines for Research scholars (Part-time)

4.1 Have to be present at least for 7 days in the RC during each semester, preferably before the Doctoral Review Committee (DRC) presentation.

4.2 Have to sign in the attendance register during their visit to RC.

4.3 If employed will have to produce NOC and willingness from the employer to provide minimum of one month leave per year during the tenure. (VTU Ph.D. regulations)

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5. Guidelines for Research scholars (Full-time)

5.1 Have to sign in the attendance register on all working days.

5.2 If employed need to produce NOC and 3 years study leave from the employer and such scholars cannot take up any other job during the tenure.

5.3 Eligible to secure stipend or assistantship from only one organization.

5.4 Eligible to apply for leave for maximum of 15 days per year with due permission from supervisor and head of the RC.

6. Guidelines for Formation of Doctoral Review Committee

6.1 A list of at least two external experts (at least one from IIT/NIT preferably) per student should be included in the DRC.

6.2 Application letter to secure funds required to conduct the meeting should be submitted 15 days in advance to Dean to seek approval from Principal.

6.3 All the faculty members and research scholars of the RC to be present for the presentation by the scholar.

7. Guidelines for Conduction of Doctoral Review Committee

The research scholar is expected to include following contents in his/her presentation.

7.1 Introduction of the work

7.2 Objectives and Methodology

7.3 Work done till date

7.4 Results and discussion

7.5 Gantt chart/ time line chart

7.6 List of papers communicated, accepted, published. (attachment in the report)

8. Guidelines for Conduction of Comprehensive Viva-Voce (CVV)

8.1 The scholar should submit the application through Dean signed by Head of RC and respective supervisor to Head of the institution to defend comprehensive viva voce and seek the approval for the same.

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8.2 Application letter to secure funds required to conduct the meeting should be submitted 15 days in advance to Dean to seek approval from Principal.

8.3 The CVV report should be as per the format prescribed by the university. A copy of the same to be retained in the RC.

9. Guidelines for Conduction of Open Seminar and Colloquium

9.1 The scholar needs to submit the application through Dean duly signed by supervisor to Head of the institution.

9.2 The complete research work should be presented in the pre-submission colloquium and an approval from the committee is to be sought for submission of Ph.D. thesis to university.

10. Summary

- The research guidelines are formulated to bring in discipline and accountability at research centers and to promote research culture in the institute.
- Faculty members and research scholars should apply for funding in various agencies.
- Minimum of two publications in peer reviewed journals is mandatory for submission of thesis to university.
- Database of attendance and research related activities have to be maintained and submitted to the Dean every month.

Dean (R&D) **Principal** **Vice Chairperson** **Chairman**

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Innovation at GNDECB

Ministry of Education (MoE), Govt. of India has established 'MoE's Innovation Cell (MIC)' to systematically foster the culture of Innovation among all Higher Education Institutions (HEIs). The primary mandate of MIC is to encourage, inspire and nurture young students by supporting them to work with new ideas and transform them into prototypes while they are informative years.

MIC has envisioned encouraging creation of 'Institution's Innovation Council (IICs) across selected HEIs. A network of IICs are established to promote innovation and entrepreneurship in the Institution through multitudinous modes leading to an innovation promotion ecosystem in the campuses.

Institution's Innovation Councils in HEIs ensure a multidisciplinary interaction and partnership approach for boosting IP generation, enhancing innovation and start-up outputs from academic institutions.

GNDEC actively worked towards implementation of the initiative. 11 Innovation ambassador are nominated to undergo training by MoE's, Conducted Hackathon SIH 2022 proposed 8 ideas, under YUKTI scheme applied 10 innovative ideas for funding and under KAPILA scheme 9 patents were applied for funding.

Karnataka ICT Group (KIG 2020) was formed under the leadership of Mr. Mohandas Pai and Mr. B V Naidu which was charted to develop Karnataka's roadmap to undisputed global leadership in ICT by the year 2020.In the state budget 2013-14 it has been announced as follows "To encourage entrepreneurship and innovation it is proposed to establish incubation centres in ICT sector in association with selected engineering colleges at district headquarters."

Under this Scheme NAIN(New Age Innovation Network) a govt. funded DIH(District Innovation Hub) established in campus. For Batch 1 ten Innovative projects were funded. All 10 projects completed, 5 patents published and process of establishing 2 startups also started.

Few initiative such as Bootcamp, YEP (Young Entrepreneurship Program) etc also conducted.

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This is to certify that

Prof. [illegible] Suranagaih

of

Guru Nanak Dev Engineering College, Karnataka

has undergone Innovation Ambassador training (Foundation Level) conducted by MoE's Innovation Cell & AICTE during the period from 30th June - 30th July 2021 in online mode.

Prof Anil D Sahasrabudhe
Chairman, AICTE

Dr. Abhay Jere
CEO, MoE's, Innovation Cell

Date of Issue: 30/07/2021

E-certificate No : 9620

Ministry of Education

MoE's INNOVATION CELL

INSTITUTION'S INNOVATION COUNCIL

CERTIFICATE

Institution's Innovation Council (IIC) established at

Guru Nanak Dev Engineering College, BIDAR

had undertaken various activities prescribed by Innovation Cell, Ministry of Education, Govt. of India to promote Innovation and Start-up in campus during the IIC calendar year 2021-22.

Dr. Abhay Jere
Chief Innovation Officer
MOE, Innovation Cell

Mr. Dipan Sahu
Assistant Innovation Director
MOE, Innovation Cell

Certificate No : 3810

Issued On : 2022-11-17

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INSTITUTION'S INNOVATION COUNCIL

SMART GNDEC HACKATHON 2022

5 SELECTED IDEAS WILL HAVE CHANCE TO PARTICIPATE IN NATIONAL EVENT

No. of problems: 524

Prize Money/Problem: 1 Lac

Seed Fund/Problem: 10 Lac

SMART INDIA HACKATHON 2022

Smart India Hackathon is a nationwide initiative to provide students with a platform to solve some of the pressing problems we face in our daily lives, and thus inculcate a culture of product innovation and a mindset of problem-solving.

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Guru Nanak Dev E... Bidar

GURU NANAK DEV ENGINEERING COLLEGEBIDAR

Approved by AICTE New Delhi , Affiliated to VTUBelagavi,ISO Certified 9001-2015, Karnataka India

NEW AGE INNOVATION NETWORK (NAIN)
(An initiative of Karnataka Innovation and Technology Society [KITS])
Department of IT, BT, Science and Technology. Govt. of Karnataka

NAIN BATCH – I [2019-2021]

List of Projects Published in Official Journal of Patent Office

SLNO	PROJECT TITLE	PATENT APPLICATION NUMBER
1	ELECTRIC MOTOR-POWERED MULTIGRAIN CUTTER	202241026560A
2	ROBUST CROP YEILD ENHANCING TECHNOLOGY	202241026564A
3	LAMANI LANGUAGE SYNTHESIZER	202241026561A
4	ROBUST SEWAGE WATER TREATMENT SYSTEM FOR HOMES	202241026553A
5	A SYSTEM FOR PREVENTION OF WATER WASTAGE	202241026550A

Visit site: https://gndecb.ac.in/incubation.html

GOVERNMENT OF INDIA

MINISTRY OF CORPORATE AFFAIRS

Central Registration Centre

Form 16

[Refer Rule 11(3) of the Limited Liability Partnership Rules,2009]

Certificate of Incorporation

LLP Identification Number: **ABB-7384**

The Permanent Account Number (PAN) of the LLP is AAJFE7958E

The Tax Deduction and Collection Account Number (TAN) of the LLP is BLRE12533D
It is hereby certified that EDUREQ SKILL DEVELOPMENT LLP is incorporated pursuant to section 12(1) of the Limited Liability Partnership Act 2008

Given under my hand at Manesar this Fourteenth day of July Two thousand twenty-two.

Digitally signed by DS MINISTRY OF CORPORATE AFFAIRS LP
Date: Fri Jul 15 11:08:43 IST 2022

Jhabboo Meena
Assistant Registrar of Companies/ Deputy Registrar of Companies/ Registrar of Companies
For and on behalf of the Jurisdictional Registrar of Companies
Registrar of Companies
Central Registration Centre

Disclaimer: This certificate only evidences incorporation of the LLP on the basis of documents and declarations of the applicant(s). This certificate is neither a license nor permission to conduct business or solicit deposits or funds from public. Permission of sector regulator is necessary wherever required. Registration status and other details of the LLP can be verified on www.mca.gov.in

Mailing Address as per record available in Registrar of Companies office:
EDUREQ SKILL DEVELOPMENT LLP

GND ENG CLG, Malloor Road,, , Siddharudh Math Area, Bidar,Bidar, Karnataka, India-585403

PRINCIPAL
Guru Nanak Dev Engg. College, Bidar

Karnataka Innovation and Technology Society
Department of Electronics Information Technology
Biotechnology and Science & Technology

E-STEP BOOTCAMP

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GURU NANAK DEV ENGINEERING COLLEGE BIDAR

Dr. Sardar Balbir Singh Ji
Chairman, GNDECB

Mrs. Reshma Kaur Ji
Vice Chairperson, GNDECB

Mr.Mahesh H
NAIN DIA

Prof. Gururaj S
NAIN CC

Dr. Ravindra E
Principal

Karnataka Digital

ELEVATE KALYANA KARNATAKA - 2022

ELEVATE KALYANA KARNATAKA 2022
AT GURU NANAK DEV ENGINEERING COLLEGE

PRINCIPAL
Guru Nanak Dev Engg. College, Bidar

K-tech

ಕರ್ನಾಟಕ ಆವಿಷ್ಕಾರ ಮತ್ತು ತಂತ್ರಜ್ಞಾನ ಸೊಸೈಟಿ
Karnataka Innovation & Technology Society
Department of Information Technology,
Biotechnology and Science & Technology
Government of Karnataka

To,
The Principal,
Guru Nanak Dev Engineering College,
Bidar - 585403

Date: 29-10-2020

Dear Sir,

Sub: Declaration of Batch-1 project results reg.

We are pleased to inform you that the projects submitted by the NAIN center of your college have been evaluated. Please find the enclosed hereby the list of projects that have qualified for the students project fund under NAIN scheme.

Kindly ensure that the project cost should not surpass the grant limit of Rs. 3 Lakh per project as per the guidelines.

Thanking You

Yours faithfully

[Praveen K N]
GM- Skilling, KITS

Guru Nanak Dev Engineering college, Bidar		
Sl. No	Project Name	Amount Approved by GoK
1	BLUE BUZZ	280000
2	ROBUST INFRASTRUCTURE FOR PREVENTING FOOD WASTAGE USING WEB, IOT AND GPS.	290000
3	Electric Motor-Powered Multigrain Cutter	292000
4	Lamani Language synthesizer	293000
5	ROBUST CROP YEILD ENHANCING TECHNOLOGY	295000
6	Six legged kinematic Walker	292000
7	SMART BLIND STICK	284000
8	V-TOOTH DEVICE FOR HEARING IMPAIRED/AGED PEOPLE	290000
9	ROBUST SEWAGE WATER TREATMENT SYSTEM for HOMES	285000
10	SOLAR POWERED SMART WATER BOTTLE	290000
	Total	**2891000**

PRINCIPAL
Guru Nanak Dev Engg. College, Bidar