

HACKATHON 4.0

December 15, 2019 - December 16, 2019

Project 01:- Internship, certification and other beneficiaries.

By:- M/s GPS Career Pathways

Problem Statement:- Cleanliness Automation using Deep Learning Challenge description with context.

Challenge with Description: Here, we are targeting complete automation of garbage collection system which includes identification of garbage from CCTV camera footage. This is the critical task where knowledge of image processing and machine learning will be applied. Participants are expected to have a data-base of images of garbage to train their model.

Exact Problem We have seen many a times that the garbage thrown on the streets gets uncollected for many days which is the source of many problems and leads to many health related issues. Here, we are assuming that CCTV has been employed at every street and we want an algorithm that can detect the garbage and determine the location of the same and notify the respective authorities. Authorities are expected to take immediate actions.

Users for this application will be Municipal Corporations, employees of municipal corporation. Citizens are not involved as the input will be collected from CCTV footage. So, only authorities of municipal corporation or private cleaning agencies will become the users.

Expected Outcomes Expected Outcome: The complete automation of garbage collection. Live Input from CCTV camera (during competition participants can have still images to train and test their model) ----> Identification of garbage ---> Obtain the location of the garbage (Here, Participants can use any simple algorithm)---> Send this location information with time to the respective authorities.

Potential Impact We have seen many a times that the garbage thrown on the streets gets uncollected for many days which is the source of many problems and leads to many health related issues. The complete automation of garbage collection will solve the problem to a great extent which would help to keep our city clean and healthy. Undeniably this would help in achieving the targets of "Swachhha Bharat" mission if it gets implemented in all cities across the country.

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Project 02:- Internship, certification and other beneficiaries.

By:- M/s CapitalVia

Statement:

CICD Pipeline integration of Jenkins with ERPNext

Tasks:

Installation of Jenkins

Configuration of Jenkins

Create a CICD & Pipelines environment here for faster development on ERPNext

Configure auto build setup in production and staging environment.

Project 03:- Internship, certification other beneficiaries.

By:- M/s Mayo Vessels and Machines Pvt. Ltd.

Statement-

To produce Compost from Solid waste in different climate areas of India:

1. Hill Stations like Ooty.
2. Warm and Hot places like central India.

Expected Outcome-

Prepare a project report which will include which process will you occupy to make the compost and which kind of bacteria you will use to make the compost best suited for environment around and for the waste that is produced in the time period of 8 months.

The waste produces is as follows:-

1. 10 to 50 kg per day.
2. 50 to 100 kg per day.
3. 500 to 1000 kg per day.
4. 25 to 50 metric tonnes per day.
5. 100 to 300 metric tonnes per day.

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Project 04:- Rs 1500, certification and beneficiaries.

By:- Mr. Prasoon Taylor and Mr. Shubham Singh

Statement-

In the management of working capital, the firm is faced with two key problems: First, given the level of sales and the relevant cost considerations, what are the optimal amounts of cash, accounts receivable and inventories that a firm should choose to maintain?

Second, given these optimal amounts, what is the most economical way to finance these working capital investments? To produce the best possible results, firms should keep non-productive assets and should finance with the cheapest available sources of funds. Why? In general, it is quite advantageous for the firm to invest in short term assets and to finance short-term liabilities. Besides this followings are some other problem, a firm is facing. Through this study we try to find answer for these problems.

- What are root causes of working capital on business?
- What are the major effects on accounts receivable?
- What is the nature of relationship between working capital and capital employed
- What steps should be taken to ensure that it effect on the profit of the firm will not be negative?
- How can working capital be managed?
- What make up the working capital cycle?
- How can debtors be controlled?

Project 05:- Rs 3000, certification and beneficiaries

By- Dr. V.S. Shivankar

Prepare a Review Paper of 5 pages on Smart Textile.

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Project 06:- Internship, certificate.

By:- M/s Anashwar Technologies

Cable spiking machine.

Machine has to drill or pierce a circular drill or wedge in to a high tension cable to perform spiking test.

Requirements:-

Must run on DC 12V

Light weight and easy to carry

Cable diameter from 80mm to 125mm



Note- These are the sample images for your help. Take help of these images to create a final output of your own.

Expected output in the form of a report of 5 pages.

Project 07:- Rs 25000, certification and beneficiaries

By:- M/s Baffles Solutions

To prepare an algorithm for which before uploading an image on social media the application will automatically calculate the post reach, approximate no. of likes and other insights for the post. Present the algorithm in the form of either Mobile App or Website.

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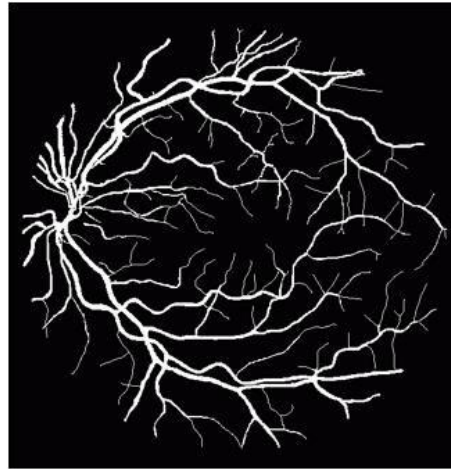
Project 08:- Rs 3000, certification and beneficiaries

By:- Mr. Sachin Chavan

Using Image Processing you have to find segmentation of blood vessels from retinal fundus image.



Example input image



Example Output Image

Project 09:- Rs. 2000, certification and beneficiaries

By:- Mr. Suraj Patil and Mr. Dhananjay Joshi

Brain Tumors are one of the common diseases of the nervous system and have harm to human health, and even lead to death. The accurate segmentation of brain tumors is of great significance for medical diagnosis surgical planning and treatment planning using python and the data set which will be provided.

Project 10:- LOR from college and recognition from CS/IT dept.

By:- Dr. Radhakrishnan Rambola

Prepare a UI/UX which will function on Voice based Desktop Control(Android Platform).

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Project 11:- Rs 10000, certification and beneficiaries

By- Mr. M. Ramachandran

To prepare a website which will be used by London University having features of selecting questions from a data set of questions for quiz, exams and then to evaluate the test given by student using HTML, CSS and Javascript.

Project 12 :-Rs. 1500, certification and beneficiaries

By- Mr. Mayank Sohani

Prepare an algorithm for Load Balancing in cloud computing. Using Java.

Project 13:- Rs 2000, certification and beneficiaries

By- Mr. Harshal Kotwal

Prepare an algorithm for pre-processing of text in the given data set of math word problems using python.

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Project 14:- Rs. 500, certification and beneficiaries

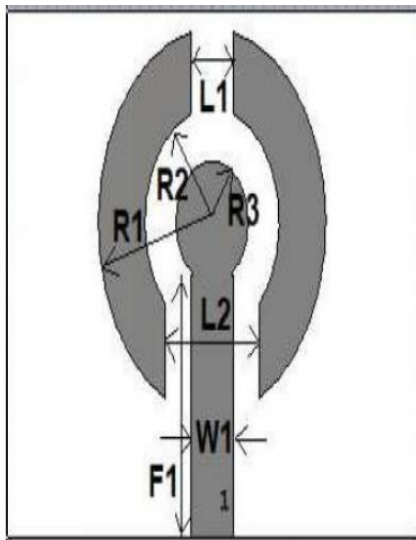
By:- Mr. Suyog Pande

Objectives:

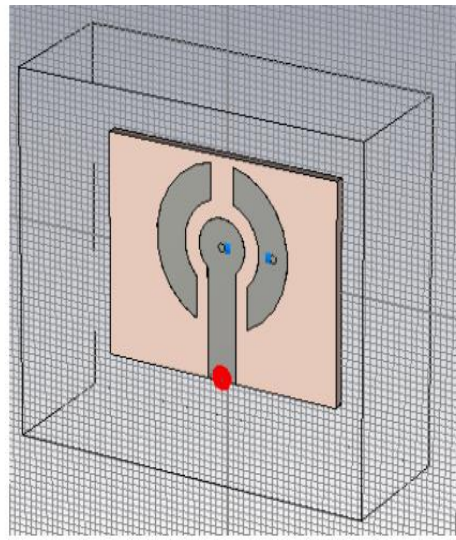
1. To design miniaturize antenna and having frequency configuration characteristics which is capable of reducing the size and requirement of multiple antennas.
2. To design antenna for WLAN application

Problem statement:

There is a demand of small size & re-configurable antenna in WLAN applications. To fulfill such demands an antenna with the integration of PIN diode as a switching mechanism in the ground plane modifies the antenna to operate at four different frequencies reducing the size and requirement of multiple antennas.



Design specifications



Frontside of antenna

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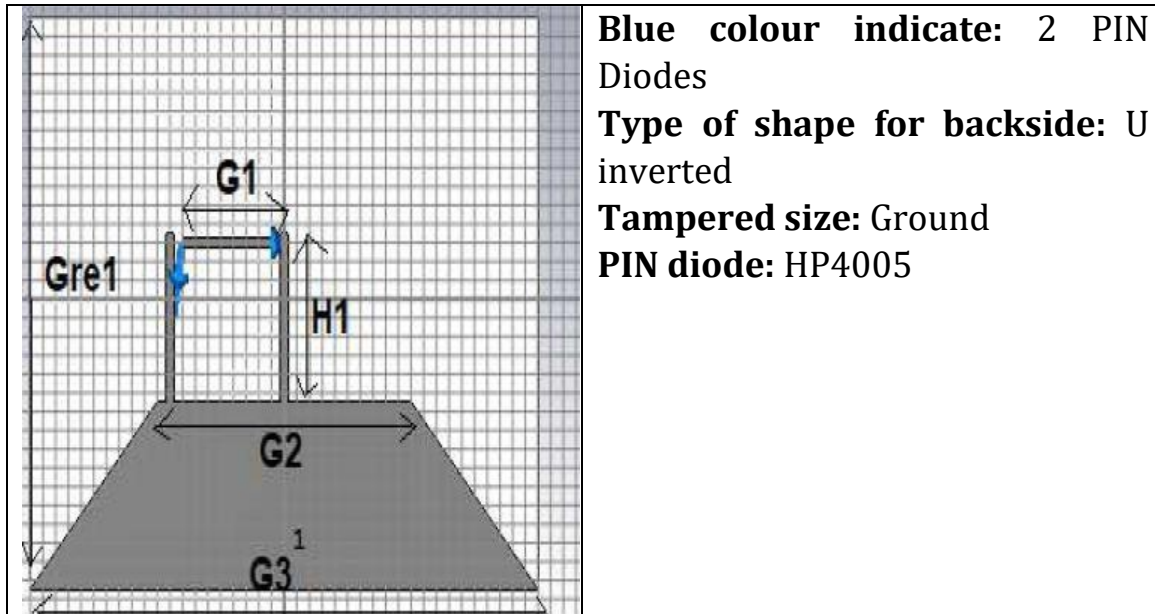


Table 1: Dimensions of the proposed antenna (mm)

Symbol	Value	Symbol	Value
R1	11	W1	3
R2	6.5	F1	17
R3	3	G1	6.5
L1	3	G2	20
G3	40	H1	6.5
L2	9	Gr1	30

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Project 15:- Rs. 3000, certification and beneficiaries.

By:- UAS NMIMS

Create an android/ios application which takes images at a regular interval of 4 seconds using mobile's rear camera and simultaneously transfers these images to a particular directory of a computer over a Wi-Fi network.

Each image must have following ex-ifs:

1. ISO: 100-3200
2. Shutter Speed: $< 1/900$ sec
3. Focus point: Infinity
4. White Balance: Auto
5. Coordinates (longitude, latitude) of location where it was taken in it's meta-data.

Project 16:- Rs. 2000, certification and beneficiaries

By:- Dr. Milan Joshi

X is travelling from Mumbai to Delhi to meet his friend Y but there is no direct route from Mumbai C_1 to Delhi C_n but there are cities $C_2, C_3 \dots C_{n-1}$ such that there are R_1 routes from C_1 to C_2 and in general R_i routes from city C_i to C_{i+1} for $i=1$ to $n-1$ and no routes for any other C_i to C_j for $j \neq i+1$.

Expected Output- Prepare an algorithm using Python which will calculate total number of routes X can take to reach Delhi from Mumbai.

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Guidelines:-

The review paper or project report will include abstract of the thing required, introduction, images, bibliography and statistical data.

The certification and beneficiaries will include a certificate from Wolf-ram Technologies, Cloud subscription coupons from Wolfram, Cloud Sploit and Balsamiq Cloud. Other than these you will get discount coupons from The Souled Store and Creative-Tim.

For every project at the time of submission, you need to submit a document as well which will include the source code, screenshot of the input and output along with bibliography of the things you've taken help from using the internet.

Terms and Condition that will be applicable for each problem:-

1. The best solution will be considered as the winner if more than one team has completed the project.
2. The team if find using any unfair means for solving the project which directly get disqualified for the particular project.
3. The solution for projects will be evaluated on first come first serve basis.
4. For the review paper or project report if plagiarism found more than 15%, it will not be accepted under evaluation.
5. Maintain the environment of the event pleasant, if found doing wrong will be taken strict action against the participant or the group caught.
6. Clean everything before going out of the seminar hall after the end of event.
7. Any harm to the college assets will be considered as an offensive activity and strict action will be taken against the participant.
8. Consumption of anything in the seminar hall is strictly prohibited.

For any issues contact:

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All the best- Technical Team