SHRI MADHWA VADIRAJA INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(A Unit of Shri Sode Vadiraja Mutt Education Trust®, Udupi)

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Vishwothama Nagar, Bantakal - 574115, Udupi District, Karnataka.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROJECT PROPOSAL

PROJECT GROUP NO:23	ACADAMIC YEAR: 2020-21

A. Proposed Title of the Project

AGRIC

B. Introduction

In India around 60% people depend on agriculture. India is famous for agriculture where Indian people export agriculture products to other countries, so India also is popularly known as agricultural country. Farmers are called as back bones of India because when backbone is damaged we are unable to stand. Farmers are compared as backbones because Indian economy is mainly based on farmers.

At the same time farmers are facing many challenges during growing of their crops in their farm. Farmers basically depend on the rain. Sometimes rainfall occurs according to the season but sometimes there is no rainfall or very less rainfall and sometimes floods also occur. Due to this all the crops get damaged and causes a great loss for farmers. The farmers who borrowed the amount from others or who have taken loan from bank, due to damage of the crops and unable to repay the borrowed money they commit suicide. The reason for suicide is mainly the crop failure and loss they face from that and sometimes even when the government policies do not reach the farmers. Proper guidance must be available for the farmers. Even the waste which is obtained by the damaged crops can be utilised in an efficient way to produce cleaner energy Source.

C. Literature Review

1. Manish Mahant, Abhishek Shukla, Sunil Dixit, Dileshwer Patel

   The application of Information and Communication Technology (ICT) in agriculture is increasingly important. E-Agriculture is an emerging field focusing on the enhancement of agriculture and rural development through improved information and communication processes. More specifically, e-agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies (ICT) in rural domain, with a primary focus on agriculture. Information and Communication Technology (ICT) can play a significant role in maintaining the above mentioned properties of information as it consists of three main technologies. They are: Computer Technology, Communication Technology and Information Management Technology. These technologies are applied for processing, exchanging and managing data, information and knowledge.

2. Ugwuishiwu C.H., Udanor C.N., Ugwuishiwu B.O., (2012)

   This paper proposes an Agro-Information System that enables a farmer to have relevant information about a crop, such as the varieties and other requirements like soil type, temperature, type and quantity of fertilizer, time of planting, time of maturity, planting distance, diseases, pest, pest and Disease control measures, rainfall, sunshine, etc. of that crop. The level of application of this information determines the volume and efficiency of the crop yield. AIS software is designed and implemented which helps the farmer achieve the afore-mentioned objectives.

3. HavliCek, J. Vanek, V. Lohr, E. Cervenkova, (2010) The rapid advancement in Information and Communications Technologies (ICTs) has given rise to new applications that were impossible just few years ago. Agriculture is an important sector with the majority of the rural population in developing countries depending on it. The sector faces major challenges of enhancing production in a situation of dwindling natural resources necessary for production. ICT plays an important role in challenging and uplifting the livelihoods of the rural populace using an agro computer-based information system. This paper proposes an Agro-Information System that enables a farmer to have relevant information about a crop, such as the varieties and other requirements like soil type, temperature, type and quantity of fertilizer, time of planting, time of maturity, planting distance, diseases, pest, pest and Disease control measures, rainfall, sunshine, etc. of that crop. The level of application of this information determines the volume and efficiency of the crop yield. AIS software is designed and implemented which helps the farmer achieve the afore-mentioned objectives.

4. Anil Gojiya and Dipamber Deb, Senior Member ,IEEE

   Energy demand in India is also estimated to double by 2040 . Due to limited availability of fossil fuels and climate change, our energy need should be fulfilled by renewable energy sources(Solar,wind, biomass etc). Among these sources, biomass is suitable to replace fossil fuels by producing bio-ethanol, bio-charcoal, bio-gas. It is also more important for countries with large land mass of agriculture (like India) which produce a large amount of agricultural residue (213Mt).Estimated power potential from agricultural residue is 29,300 MW. Indian government has initiated a program to promote and provide subsidy to use this unused power potential and to install residue.

D. Objectives

- Making use of the agriculture waste and damaged crops to form cleaner energy and hence reducing the farmers loss as well as producing bio-fertilizer.
- Providing information to the farmers on wide variety of crops and keep them updated with the current prices.
- Another objective of this application is to develop a site for farmers to provide direct interaction with bank for loan facilities. There will be an EMI calculator available in this website. Also keeping farmers updated with the loan facilities.

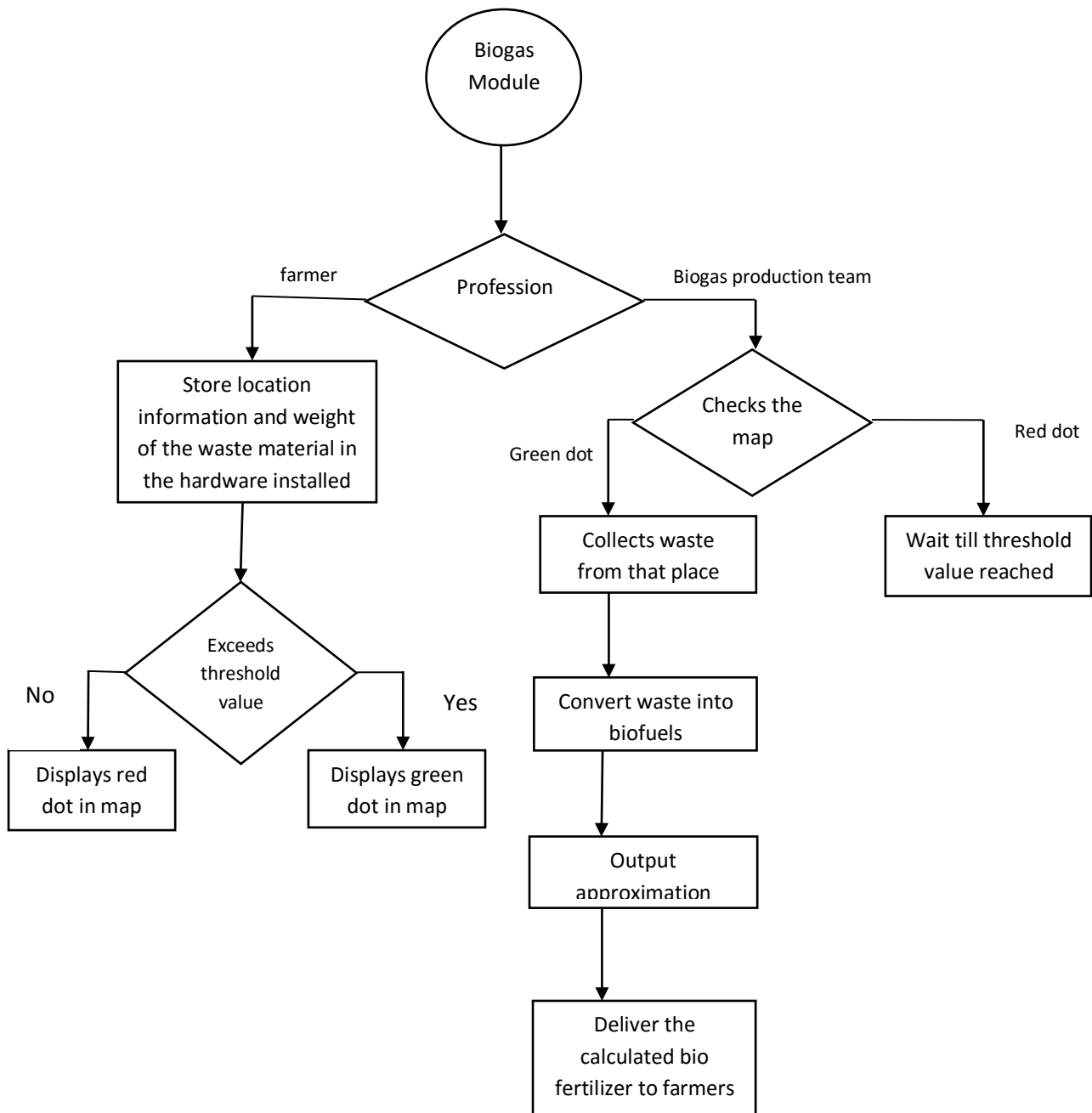| E. Workplace	Address of Other Institute / Industry (if any):
College	SMVITM,BANTAKAL

F. Requirement Details

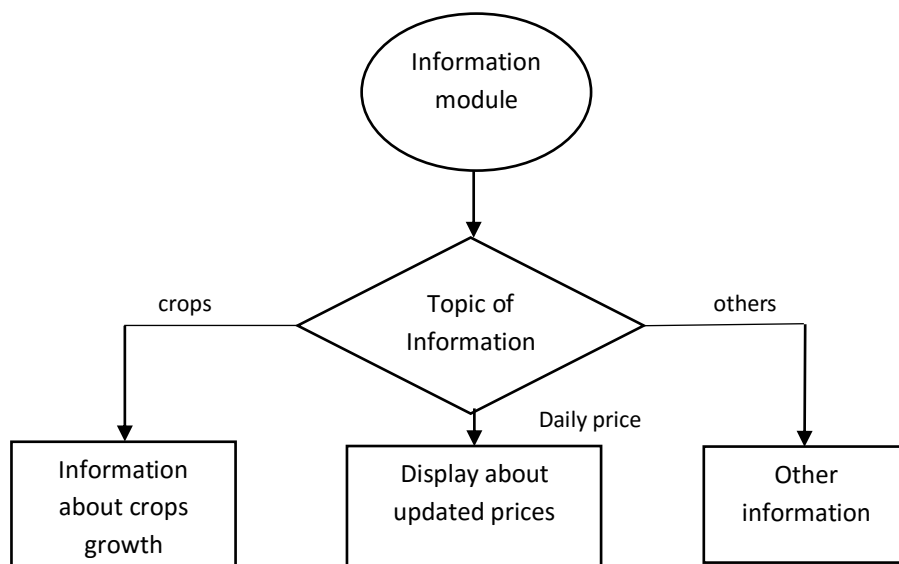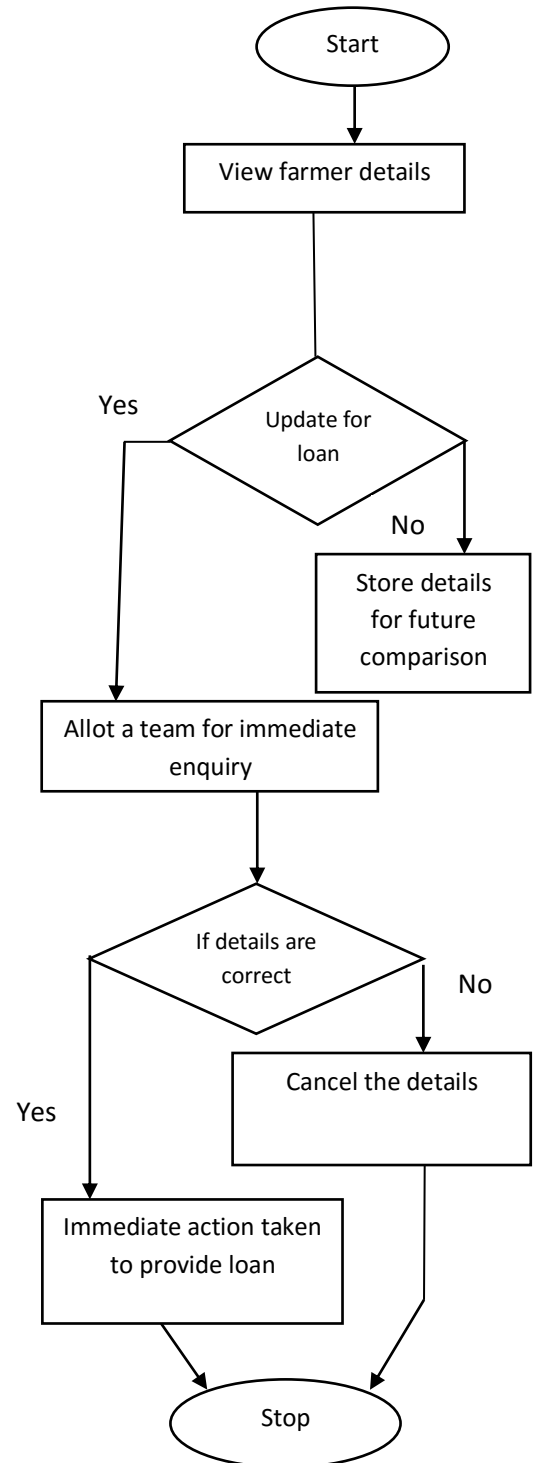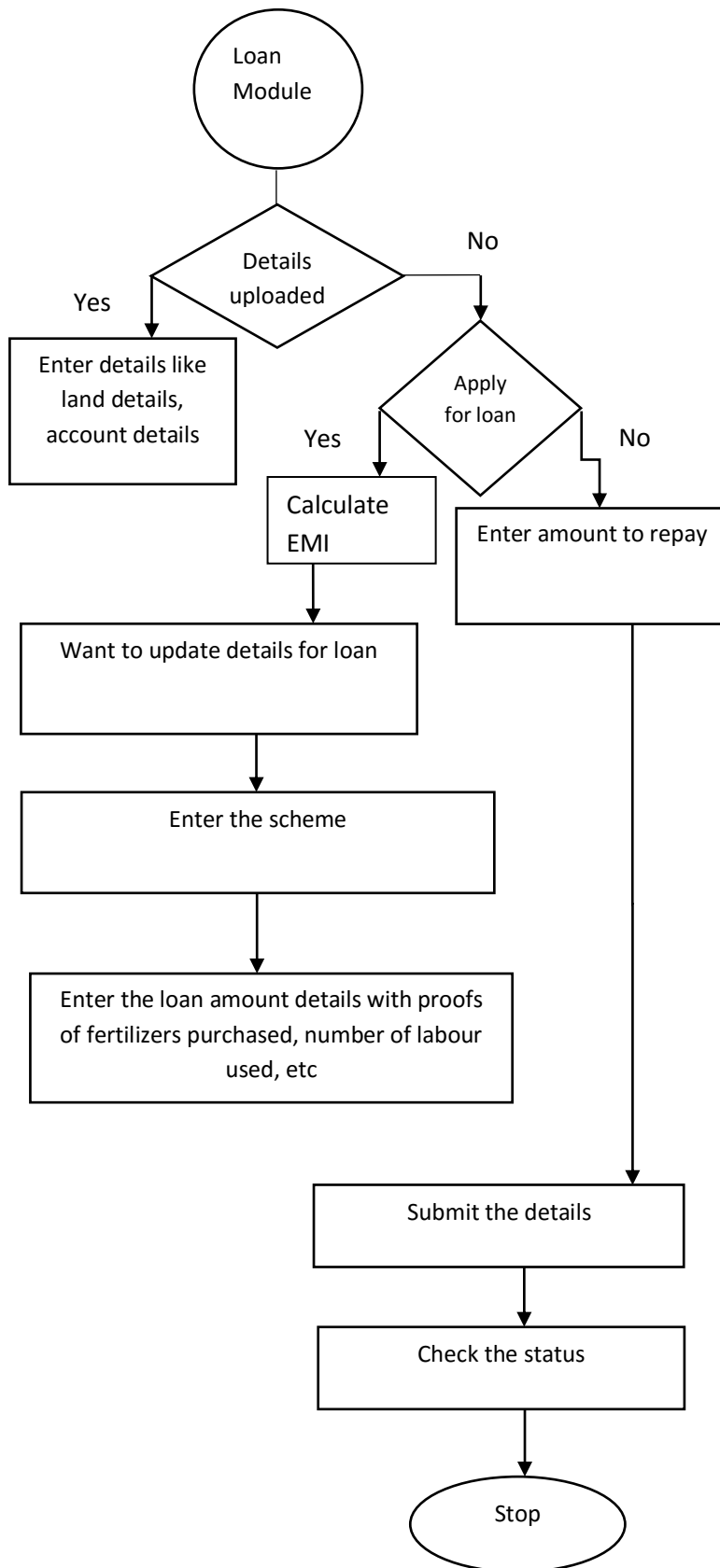| 1. Hardware	Arduino UNO, jump wires, load cells ,GPS module, Standard LCD,breadboard
2. Software	Sublime text editor, Arduino software(IDE), google chrome
3. Skill sets	PHP ,HTML, CSS
4. Others	

G. Figure(s)/Drawing(s)
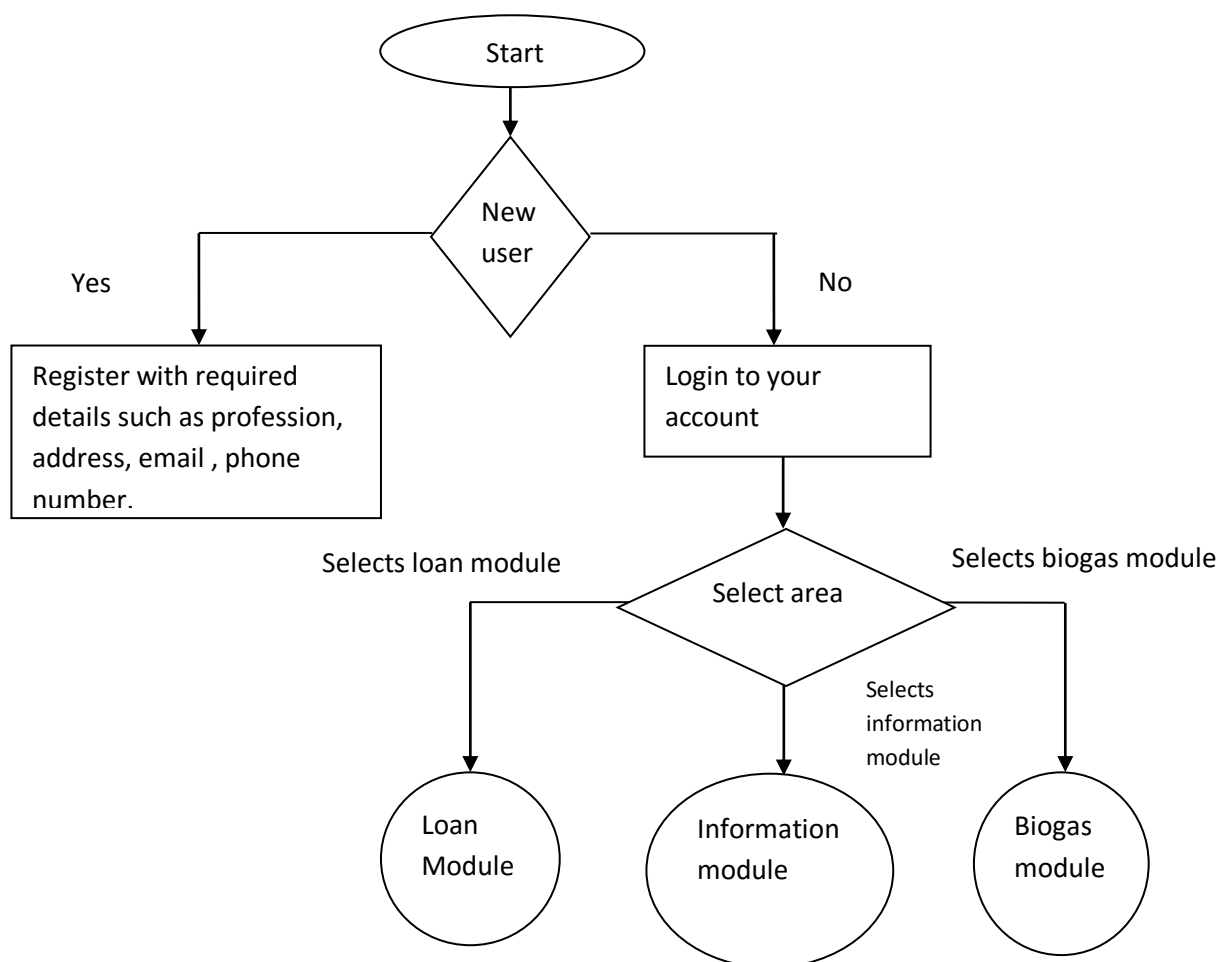
i. combination of all three modules

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                          ┌─────────────┐
                          │   Biogas    │
                          │   Module    │
                          └─────────────┘
                                 │
                                 ▼
        farmer            ╱◇◇◇◇◇◇◇◇◇◇╲        Biogas production team
   ┌──────────────────◇   Profession   ◇──────────────────┐
   │                   ╲◇◇◇◇◇◇◇◇◇◇◇◇◇╱                      │
   ▼                                                       ▼
┌────────────────────┐                          ╱◇◇◇◇◇◇◇◇◇◇◇╲
│  Store location    │                         ◇  Checks the  ◇
│  information and   │                         ◇     map      ◇
│  weight of the     │                          ╲◇◇◇◇◇◇◇◇◇◇◇╱
│  waste material in │        Green dot        │           │      Red dot
│  the hardware      │                         │           │
│  installed         │                         ▼           ▼
└────────────────────┘              ┌──────────────┐  ┌──────────────┐
        │                           │ Collects     │  │ Wait till    │
        ▼                           │ waste from   │  │ threshold    │
    ╱◇◇◇◇◇◇◇◇╲                      │ that place   │  │ value reached│
   ◇ Exceeds  ◇                     └──────────────┘  └──────────────┘
   ◇threshold ◇                            │
   ◇ value    ◇                            ▼
    ╲◇◇◇◇◇◇◇◇╱                     ┌──────────────┐
  No │        │ Yes               │ Convert waste│
     ▼        ▼                   │ into biofuels│
┌─────────┐ ┌─────────┐           └──────────────┘
│Displays │ │Displays │                  │
│red dot  │ │green dot│                  ▼
│in map   │ │in map   │           ┌──────────────┐
└─────────┘ └─────────┘           │ Output       │
                                  │ approximation│
                                  └──────────────┘
                                         │
                                         ▼
                                  ┌──────────────┐
                                  │ Deliver the  │
                                  │ calculated   │
                                  │ bio fertilizer│
                                  │ to farmers   │
                                  └──────────────┘
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ii.   biofuel module

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                          ┌─────────────┐
                          │ Information │
                          │   module    │
                          └─────────────┘
                                 │
                                 ▼
     crops            ╱◇◇◇◇◇◇◇◇◇◇◇◇╲        others
  ┌──────────────◇    Topic of     ◇──────────────┐
  │               ◇  Information    ◇              │
  │                ╲◇◇◇◇◇◇◇◇◇◇◇◇◇╱                 │
  │                       │  Daily price           │
  ▼                       ▼                        ▼
┌──────────┐      ┌──────────────┐        ┌──────────────┐
│Information│     │ Display about│        │   Other      │
│about crops│     │ updated      │        │ information   │
│growth     │     │ prices       │        └──────────────┘
└──────────┘      └──────────────┘
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iii.   information module

iv. loan module

H. Methodology

The application includes three modules.

- The first module is of management of biogas production using farm waste. It will be a system that will send real time sensors-based data on software system with live location feeds which eventually enables to track biomass/ residue availability point. The point is nothing but the small area occupied by the low-cost device which is the weight management system where the residues will be collected. Now the points will be plotted on maps and same within the app to track and locate the point of biomass collection as shown in the figure. Hence using google earth engine's API for the same. When permissible amount/weight of biomass will exceed, it will be shown by green dots on maps while the empty location/ points will be shown by red color indicating no need to traverse through the path since they will be the points of zero biomass availability. The collectors have to go to these places where the dot is marked green and collect the waste .The central system is the one where clean and green energy will be generated from the residue/ biomass. At the centre they calculate the amount of biomass produced and the amount of waste consumed.A price will be fixed to the farmers based on the amount of biogas produced. The residue waste which remains is collected and converted ino fertilizer and sent to farmers as bio-fertilizer.
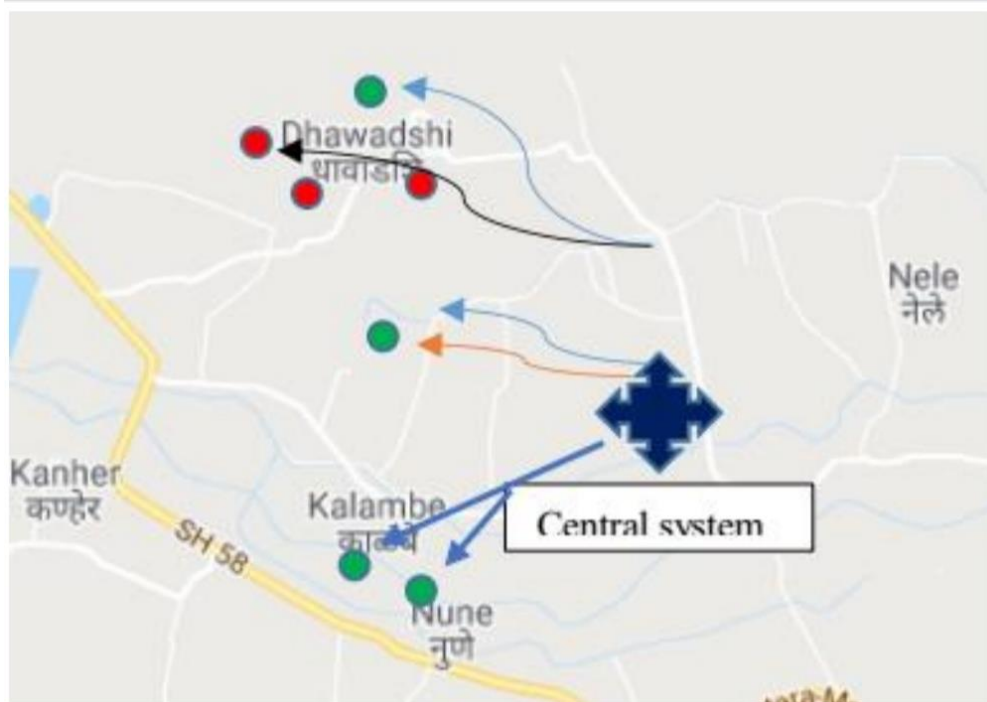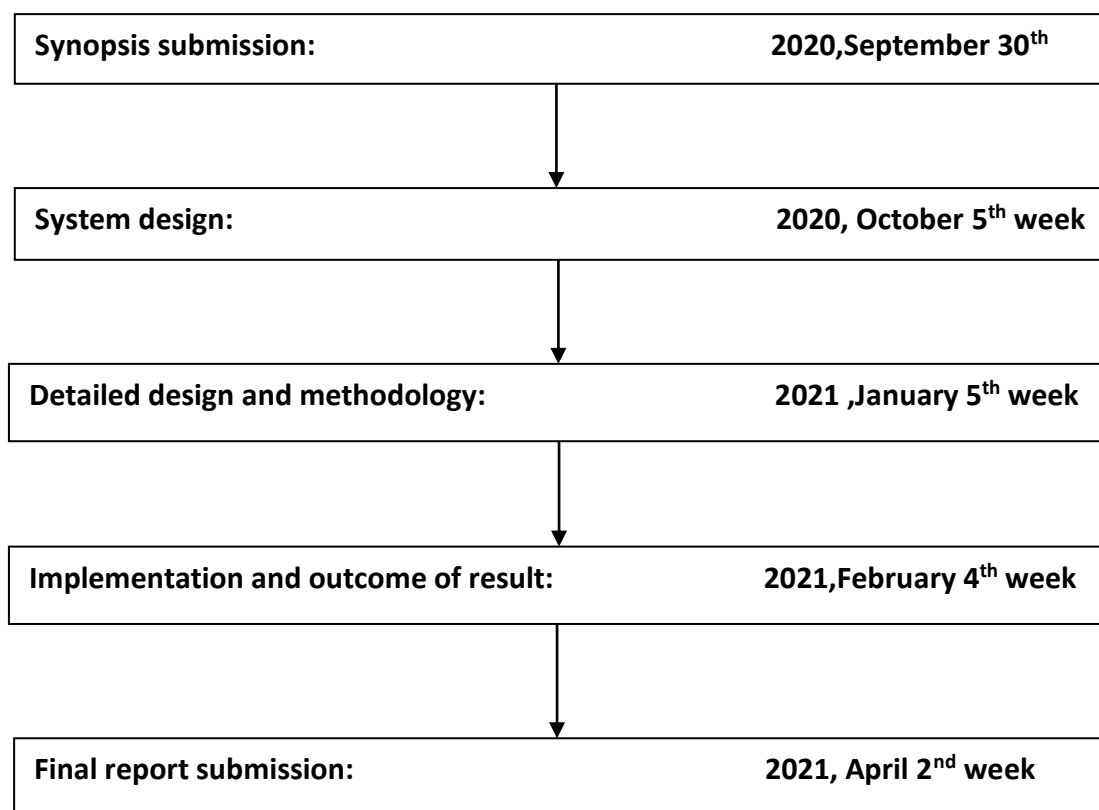

Figure showing the red and green points on map for collection of waste

- The second module is about providing information to the farmers in general. This consists of information about various crops which the farmers can grow and the necessary details for growing them. It also consists of daily prices to keep the farmers well informed.
- The third module mainly consists of two things. First is the farmer filling the details like land details, with required proofs and also account number must be filled in order to get loan from the bank. Secondly the farmer has to update the details for requesting loan or repaying. He can calculate the EMI using the EMI calculator provided. Later the farmer has to enter the amount spent on fertilizers ,labourers if possible the image of farm to get the loan. The bank checks the details entered by the farmer. If the details are proper the bank does the needed and provide the necessary loan and keep the farmers updated on loan facilities.

I. Flowchart (Plan of Action)

Synopsis submission:	2020, September 30th

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System design:	2020, October 5th week

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Detailed design and methodology:	2021, January 5th week

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Implementation and outcome of result:	2021, February 4th week

↓

Final report submission:	2021, April 2nd week

J. Expected Outcome of the project

- The agriculture waste or loss will be useful to make cleaner energy and also reduce the famers loss.
- The farmers will be well informed about the variety of crops and up to date with the daily prices.
- A direct link to the farmers and the bank will be created with information about the available loan schemes.

K. Estimated cost	Source of Fund
5000	• Self

L. References

- **2019 9th International conference on Engineering Trends in Engineering and Technology - Signal and information processing(ICETET-SIP-19)**
- **Feasibility of biomass power plant with agricultural waste processing-Anil Gojiya and Dipamber Deb, Senior Member ,IEEE**

M. Project Batch members

S.No.	USN	Name	Signature with date
1.	4MW17CS055	PRAJNA U	
2.	4MW17CS056	PRAJWAL B S	
3.	4MW17CS083	SHRINIDHI N	
4.	4MW18CS600	SHREE VIDYA RAO A	

N. Accepted/Rejected:	
O. Suggestions for implementation:	

P. Guidance	
Guide (s) allotted	Signature (s) with date
1. Guide	
2. Co-Guide	
Q. Name of the Committee member	**Signature with date**
1.	
2.	
3.	
4.	