

## Project Based Learning - Project Approval Form

Title : IOT based motor starters (GSM/GPRS Technology with Arduino micro-controller).

Form No.

|   |                        |
|---|------------------------|
| Department: <u>ENTC</u>   | Academic Year: 2020-21 |
| Semester : <u>4</u>   | Group No. : <u>G14</u> |
| Project Title: <u>IOT based motor starters (GSM/GPRS Technology with Arduino micro-controller).</u> |                        |
| Project Domain/s: <u>IOT and Embedded system.</u>   |                        |

### Group Members Details:

| Sr. No.  | Class & Div. | Roll No.  | Registration No  | Name of Student                 | Contact No.       | Email ID   |
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|          |              |           |                  |                                 |                   |  |

Name of Internal Guide:  
Contact No. & Email ID:

Project approved / Not approved

PBL Guide

PBL Coordinator

Head of Department

### **Project Idea:**

In our farms we get power supply from the local grid only for about 6 hours a day. Timings are not regular, availability of power can be early morning or late in the evenings or even midnight. Every time going to the bore well location to check power availability, start or stop the motor was very painful process. Also we had to ensure motor runs at least 2-3 hours every day to supply adequate water for the drip system. Quite some time we were exploring options to solve this problem by remotely operating the motor and also know the status. There are devices available in market which will start the motor as soon as there is a power supply, but they don't have the feature to stop the motor whenever we want. And also there is no way to know the status of motor ON/OFF at any point of time. This usually leads to over irrigation, leading to loss of soil fertility and also waste of electricity.

So finally to solve this problem I thought of an idea which might solve this problem, So what are we planning is to create some hybrid attachments for our conventional starters(No need to buy new one) that can send the present status of our motor to the server and from to our smartphones and can turn ON/OFF as per our will.

We will use some electric supply sensors which will sense the the power supply and the present state(ON/OFF) of our motor. And feed that information to our **Arduino** micro-controller. Thereafter by using **SIM800L GSM/GPRS** module(Cause we do not have wifi availability at remote places) we will send that info to the server and then by logging in from our smartphone we will get the real time status of our motor. And from there(smartphone) we will turn ON/OFF the motor.

## Project Based Learning - Progress Review Form

| Group No. <u>G14</u> |                   |   |  |                    |
|----------------------|-------------------|---|--|--------------------|
| Sr No                | Date              | Activity  | Remark   | Signature of Guide |
| 1                    | <u>25/01/2021</u> | <u>Discussion of Idea, Workbook filling, hardware requirement and finalising the project.</u> | <u>Did cost estimation, hardware/software requirements and finalised the project.</u>  |                    |
| 2                    | <u>01/02/2021</u> | <u>Been through research papers, previously present technology and going on researches.</u>   | <u>Learned about IOT technology, advantages, limitations and usability.</u><br><u>Research Papers:</u><br><u>1. IJAREEIE : <a href="https://drive.google.com/drive/folders/1aeFDMbCBJZ3P92juBKLnntWR9LjoXipu?usp=sharing">https://drive.google.com/drive/folders/1aeFDMbCBJZ3P92juBKLnntWR9LjoXipu?usp=sharing</a></u> |                    |
| 3                    | <u>08/02/2021</u> | <u>Analysing circuit diagrams.</u>  | <u>Took an overlook of circuit diagram of project.</u>   |                    |
| 4                    | <u>12/02/2021</u> | <u>Finding suitable power-supply.</u>   | <u>Needed 5V 3A for Arduino microcontroller and 3.7V 2A for SIM800L module.</u>  |                    |
| 5                    |                   |   |  |                    |
|                      |                   |   |  |                    |
|                      |                   |   |  |                    |
|                      |                   |   |  |                    |
|                      |                   |   |  |                    |

## **PBL Rubric**

1. Idea Inception (5%)
2. Outcomes of PBL/ Problem Solving Skills/ Solution provided/ Final product (50%) (Individual assessment and team assessment)
  - a. Expected Outcomes of PBL:  
This project is made for saving valuable time, money and energy of the people. So the expected output of this project is when the power cuts off at the station, it should notify the user, and when power is available it shall let the user to turn ON/OFF the device.
  - b. Problem Solving Skills used:  
To solve this problem we are using technology domains like IOT and embedded system. By using IOT system we are availing the ease and speed of control to the remote and large areas. And by using embedded system we are actually implementing the control on the system in real time.
  - c. Solution provided:  
The Arduino controller will send the present real time state of the power supply and the motor to the server. And by using our smartphone we can manipulate with/command the controls of the system.
  - d. Final product:  
IOT based motor starters (GSM/GPRS Technology with Arduino micro-controller).
  - e. Assessment type: Team assessment.
3. Documentation (Gathering requirements, design & modelling, implementation/execution, use of technology and final report, other documents) (25%)
  - a. Defining requirements:
  - b. Design & Modelling:
  - c. Implementation/execution:
  - d. Use of technology:
  - e. Final report:
  - f. Other documents (if necessary)

4. **Demonstration (Presentation, User Interface, Usability etc) (10%)**
  - a. **Presentation**
  - b. **User Interface**
  - c. **Usability etc**
5. **Contest Participation/ publication (5%)**
6. **Awareness /Consideration of -Environment/ Social /Ethics/ Safety measures/Legal aspects (5%)**