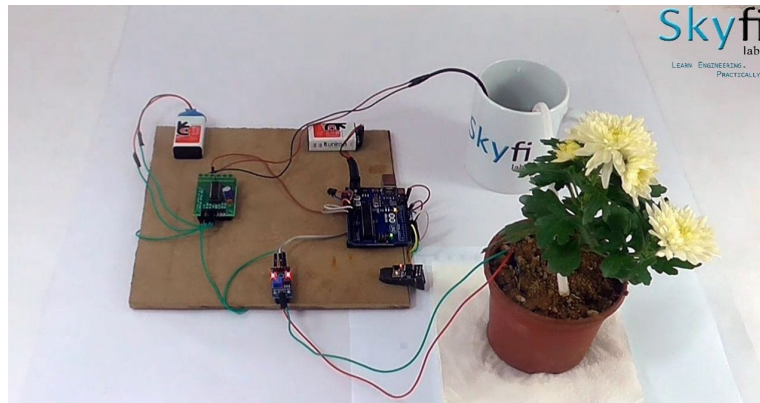IOT Based Smart Irrigation System:

INTRODUCTION:

- Internet of Things (IoT) is an upcoming technology which is going to revolutionize all the electronic gadgets that we see today in the coming years.
- This particular project is an application of Internet of Things (IoT) Technology.
- The main theme of this IoT project is to develop a device that can monitor the moisture content of the soil and turn on the water pump automatically whenever the moisture drops below a threshold value.
- This device can also be programmed to send the user an update via email regard to the moisture level changes from a remote location.
- This project is mainly used for farming .when the lawns and crops needed to be watered we don't know how much water is needed for that so by using this system we can easily overcome that problem.
- In this project mainly we will use some sensors which are able to monitor the soil moisture level around their plants, as well as monitor weather conditions, so they can use water more efficiently and effectively.

Aim of smart irrigation system:

- The main aim of the smart irrigation system is to monitor the soil moisture level of around plants and then pour water.
- Nowadays agricultural field is facing lot of problems due to lack of water resources.
- In order to help the farmers to overcome the difficulties, smart irrigation system has been used.

User perspective:

- Now-a-days the water problem in agriculture has become a great problem
- So to overcome that problem we can use this smart irrigation system
- This will help you to monitor the soil moisture in and around the plants and if any moisture level is decreased it will sprinkle the water.
- In this system, various sensors such as pH, soil moisture, DHT11, PIR (intruder detecting system) and pressure sensors are connected to the input pins of arduino microcontroller.
- The sensed values from the sensors are displayed in LCD.

- If the sensed value goes beyond the threshold values set in the program, the pump will be automatically switched ON/OFF by the relay circuit and it is connected to the driver circuit which helps to switch the voltage.
- The farmer will be intimated about the current field condition through GSM module and also updated in the web page.
- By using this system, the farmer can access the details about the condition of the field anywhere at any time.

Designer perspective:
- In this we will use different sensors are used like for detecting pH value and for detecting humidity and for detecting temperature . As those all were working on less voltage only so the power supply is also less.
- Irrigation status is updated to the server or localhost using Personal Computer. Java platform is used here for getting information via serial communication from microcontroller and to update in the server.
- In addition for better cropping system, fertilizers required for the crops, best crops to cultivate for the particular climatic and soil conditions are updated to server at regular basis by monitoring soil PH level, Temperature level of the field area etc.,
- By using PC host, crop is continuously monitored. Also LCD is used to display the PH, temperature and moisture level. This will improve the cultivation method and leads to better productivity.
- Due to the regular updates to the server we can get proper knowledge to the system can work perfectly for indefinite time period, even in certain abnormal circumstances and increase the production rate also.It will also reduce the human factor,energy,and power.
- Due to server updates farmers can know about crop field nature and everything at anywhere.
- Here we can use android device as a scope to access data instaed of computer(PC) and very clearly

Constraints:
- As it is an IOT device it need the access of the internet continuously.
- If there is any problem in internet then it become a big problem to access the device.and also it is unable to send any information and receive any information.
- If the sensors are damaged due to the continous working it also leads to uncomfort.
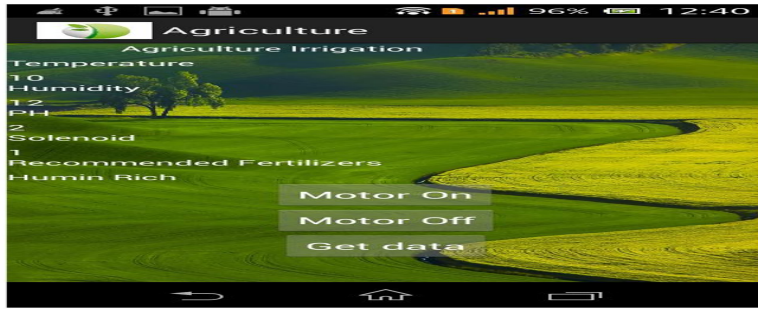
Fig 8 Data displayed in app