TUF | THE UNIVERSITY OF FAISALABAD

IoT Smart Agriculture & Automatic Irrigation System

INTRODUCTION

Agriculture plays a vital role in the development of agricultural countries like Pakistan. Issues concerning agriculture like unequal distribution of water for a whole land, watering at improper temperature and improper moisture in field etc. have been always hindering the development of the country. Consequently, the only solution to this problem is smart agriculture by modernizing the current traditional methods of agriculture.

So, IoT smart farming solutions is a system that is built for monitoring the crop field with the help of sensors (light, humidity, temperature, soil moisture, crop health, etc.) and automating the irrigation system. The farmers can monitor the field conditions from anywhere using his mobile device with internet availability.

PROBLEM STATEMENT

To provide efficient decision support system using wireless sensor network which handle different activities of farm and gives useful information related to farm. Information related to Soil moisture, Temperature and Humidity contents. Due to the weather condition, water level increasing Farmers get lot of problems in achieving specifications which is not good for Agriculture. Water level is managed by farmers in both Automatic/Manual using that mobile application. It will make more comfortable to farmers.

OBJECTIVES

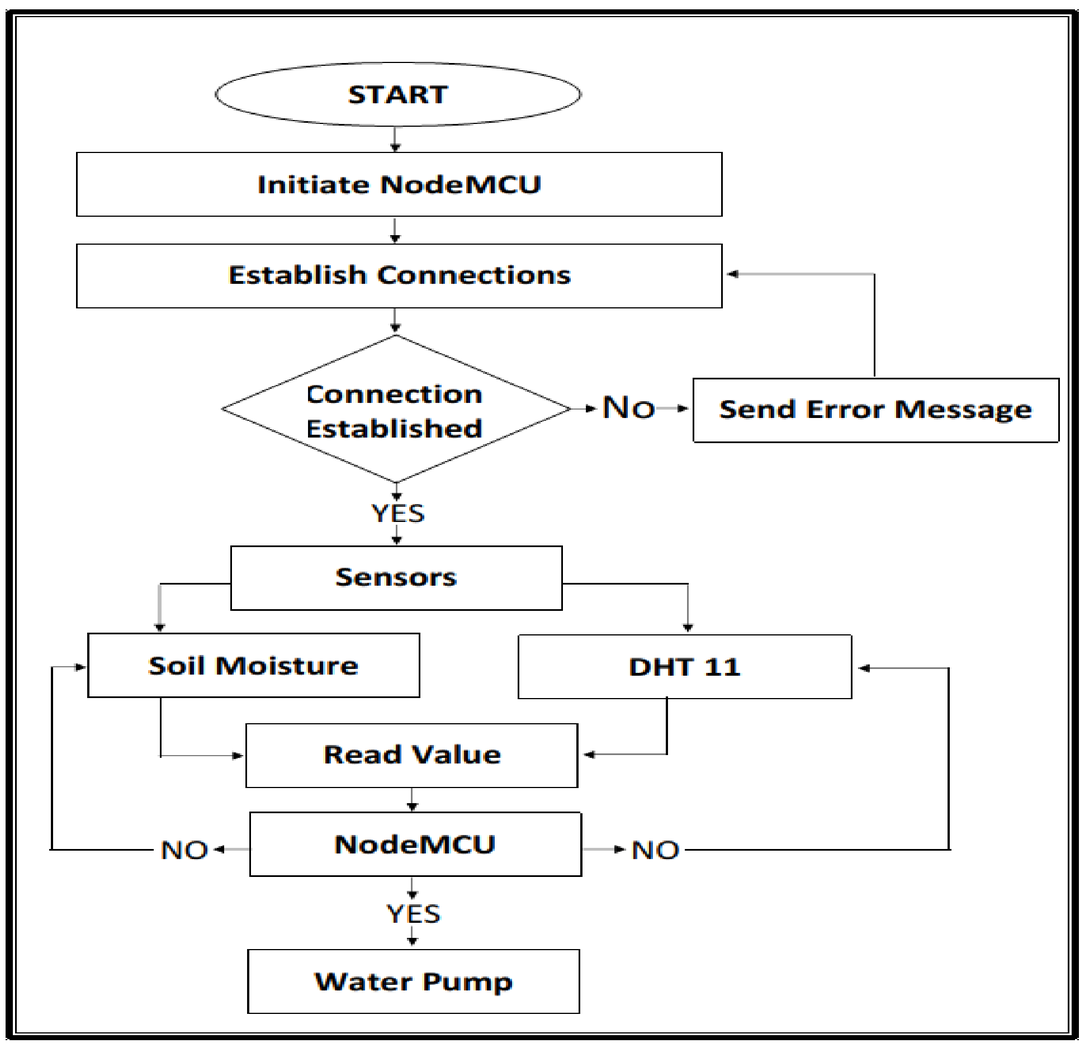
The objectives of this project are as follows.

- Real time temperature, humidity, tree and water monitoring.
- To transfer data over internet through wi-fi module to server.
- To implement Peer-to-Peer network and multipoint network can be established by configuring each module to operate as a sensing node.

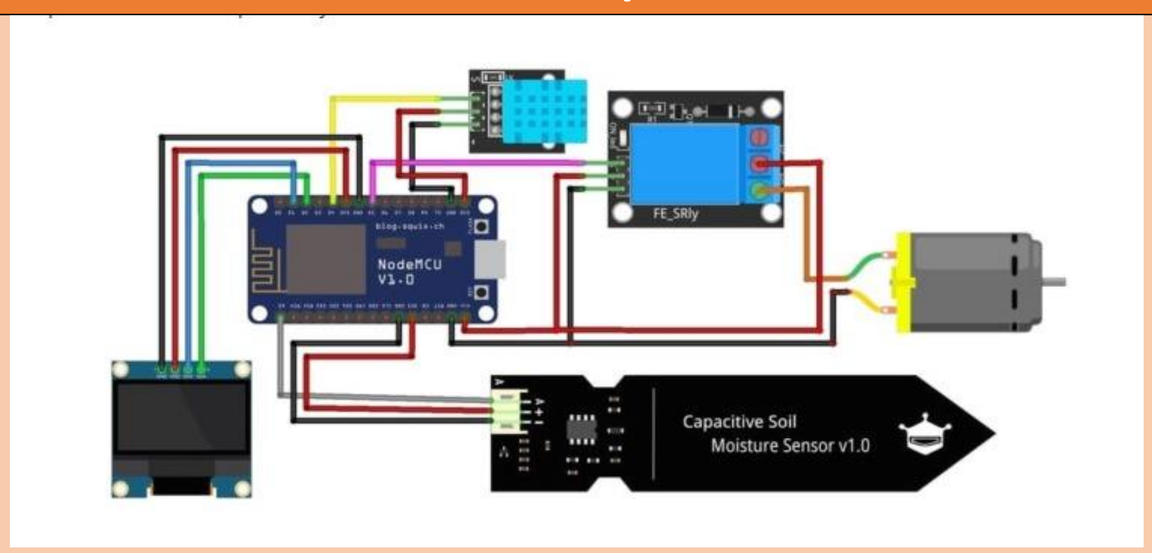
METHODOLOGY

Methodology consists of following steps:

- Hardware designing.
- Reading value of sensors (moisture and temperature) using NodeMcu.
- Sending and plotting data via online server.

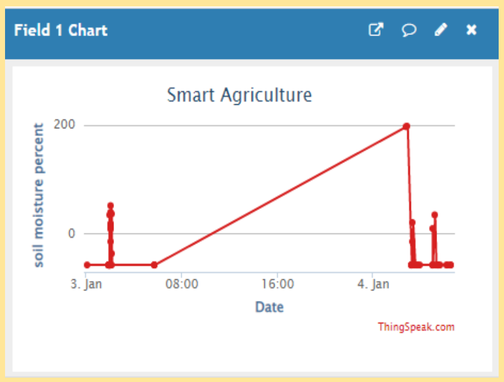


CIRCUIT DIAGRAM/ SCHEMATICS

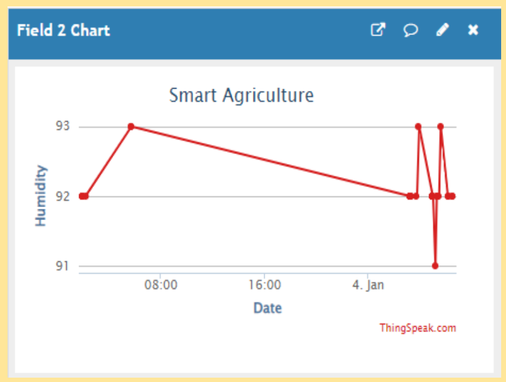


RESULTS AND DISCUSSION

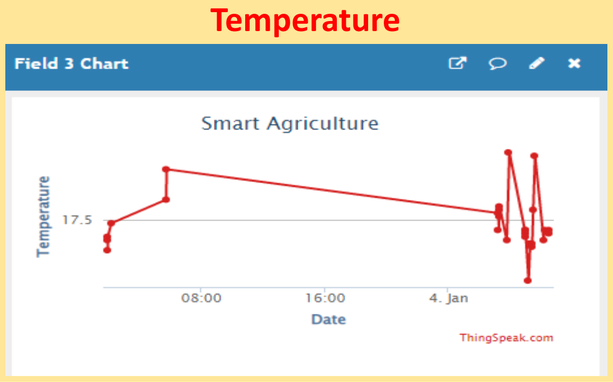
Soil Moisture



Humidity



Temperature



FUTURE WORK

The presented irrigation system can reproduce in future by using other decision-making techniques such as random forest. Moreover, the edge computing architecture can be further improved by making the edge server responsible for processing data and depicting the result from the machine learning algorithm.

CONCLUSIONS

- The data is displayed on online cloud in graphical form.
- System is working continuously and providing data on online format.
- As well as the data is also displayed on OLED display implemented inside field .
- A minimum temperature and moisture is given constant value to comparison for operating.
- It is working on the principal of comparing current value of sensor with set value to operate for working.

REFERENCES

1. Nikesh Gondchawar, Dr. R.S.Kawitkar, “IoT Based Smart Agriculture”, International Journal of Advanced Research in Computer and Communication Engineering (IJARCCE), Vol.5, Issue 6, June 2016.
2. M.K.Gayatri, J.Jayasakthi, Dr.G.S.Anandhamala, “Providing Smart Agriculture Solutions to Farmers for Better Yielding Using IoT”, IEEE International Conference on Technological Innovations in ICT for Agriculture and Rural Development (TIAR 2015).