Agro Tech Project Work Progress (Sensor Data Collection)

- Earlier we thought of connecting the sensors directly to Node MCU to send data to Rpi (at 1st level i.e. lower level). I worked on that idea for some time. As we all know, Node MCU got only one analog pin. So, we used one Node MCU per sensor. But the difficulty we faced was, we could not get all the different sensor values (soil moisture, water level, etc) in a single record. This is in the notice of all of us, which we discussed in our earlier meetings. And our team members felt that, it would be better to get all the sensor values in the form of a single record (at a particular time instance).
  Based on this discussion and Nagender Sir suggestions, I used Arduino to connect the sensors. This might be in the notice of some of our team members. So, the structure is as follows now:

  Arduino with sensors connected --> Node MCU --> Rpi (1st level) --> Rpi (2nd level – where ML algorithms would be running) --> Firebase cloud

- At present, I connected Soil Moisture sensor and Water Level sensor to the arduino board. I could extend it to include NPK sensor based on the inputs given by the people who developed it.

- Used serial communication to send data from Arduino to Node MCU. Used MQTT to send data from Node MCU to Rpi (1st level). Used MySQL database replication to replicate the database table data (sensor values) from 1st level of Rpi to 2nd level of Rpi.

- Only thing is, at present the Rpi program is collecting sensor data at every 10 secs. If I increase the duration (like sampling at every 1 minute or 5 minutes etc), the program is not receving the data. Earlier, when the database replication was not done, it was working (could collect data at every 5 minutes etc).
  So, I left the data collection at every 10 secs at Rpi-1. And the same is being replicated at Rpi-2.

- If the concerned people could let me know (give the processed data from the program at Rpi at level-2), what is the SUMMARY or OUTPUT from ML model that is to be sent to FIREBASE CLOUD I would continue my work. And another design issue is what is database schema in the CLOUD.

- Attaching is the SCREENSHOT of the database table values.

- For your kind information. Thank you.