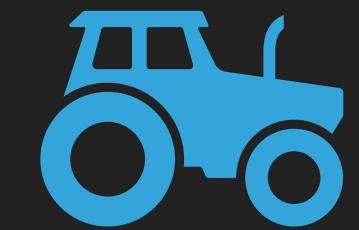




NOKIA-5G IOT PROJECT

SMART AGRICULTURE MONITORING IOT SYSTEM

ABSTRACT INTRODUCTION



- ▶ India, being one of the largest agricultural dependent nations, is way behind the rest of the world in terms of advanced analytics
- ▶ There is a need for the promotion of crop cultures and the production of high yields.
- ▶ Thus, this smart monitoring IoT system uses all the sensors with the data processing capabilities to monitor the environmental conditions that are vital for the healthy growth of crops.

The Problem

The constant decline in soil health is often cited as one of the reasons for stagnating or declining yields.



fineart
américa

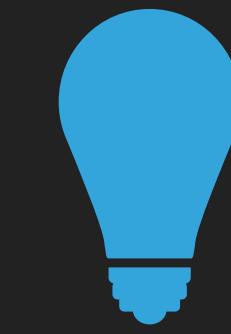
Our Mission

“

To reduce labour cost, improve efficiency of production and promotion of high yield, through analytical solutions!

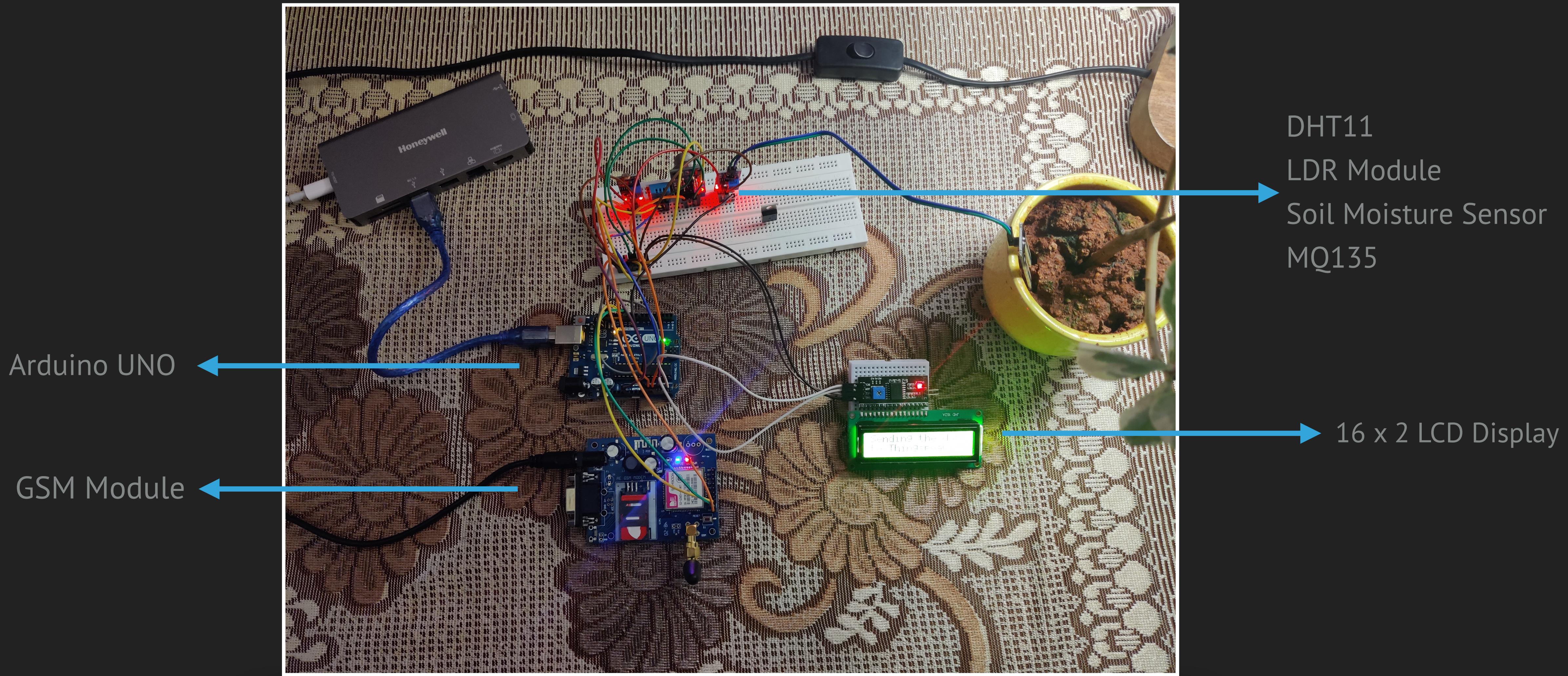


WORKING PRINCIPLE



- ▶ Smart farming is a technology concept where data from several agricultural fields is collected using smart electronic sensors.
- ▶ IoT can help reduce the labour cost in dealing with poor weather forecasting issues and ensures reliable data analytics for anyone.
- ▶ With the usage of IoT, we are equipped with powerful tools that help us analyse the data more effectively and precisely.

THE DEVICE



TEAM 6

CODE

```
void loop()
{
    chk = DHT.read11(DHT11_PIN);
    temp = DHT.temperature;
    humi = DHT.humidity;
    soil = analogRead(A0);
    light = analogRead(A1);
    gas = analogRead(A2);
    lcd.clear();
    lcd.setCursor(0, 0);
    lcd.print("Soil:");
    soil = map(soil, 0, 1023, 100, 0);
    lcd.print(soil);
    lcd.print("%");
    lcd.setCursor(0, 1);
    lcd.print("Light:");
    light = map(light, 0, 1023, 0, 100);
    lcd.print(light);
    lcd.print("%");
    delay(3000);
    lcd.clear();
    lcd.setCursor(0, 0);
    switch (chk)
    {
        case DHTLIB_OK:
            HT = true;
            break;
        default:
            HT = false;
            break;
    }
    if (HT == true)
    {
        lcd.print("Temp:");
        lcd.print(temp);
        lcd.print(" *C");
        lcd.setCursor(0, 1);
    }
}
```

```

    lcd.print("Humidity:");
    lcd.print(humi);
    lcd.print("%");
}
else
{
    temp = 0;
    humi = 0;
    lcd.print("Temp:");
    lcd.print("No Data");
    lcd.setCursor(0, 1);
    lcd.print("Humidity:");
    lcd.print("No Data");
}
delay(3000);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Air Qlt: ");
gas = map(gas, 0, 1023, 0, 100);
lcd.print(gas);
lcd.print("%");
lcd.setCursor(0, 1);
delay(3000);
Send_data();
}
```

```
ShowSerialData();

gprsSerial.println("AT+CSTT=\\"airtelgprs.com\\\""); //start task and setting the APN,
delay(1000);

ShowSerialData();

gprsSerial.println("AT+CIICR"); //bring up wireless connection
delay(3000);

ShowSerialData();
```

```
String str="GET https://api.thingspeak.com/update?api_key=ULDRU2ZMYGNI71D1&field1=" + String(soil) + "&field2=" +
Serial.println(str);
gprsSerial.println(str); //begin send data to remote server

delay(4000);
ShowSerialData();

gprsSerial.println((char)26); //sending
delay(5000); //waitting for reply, important! the time is base on the condition of internet
gprsSerial.println();

ShowSerialData();

gprsSerial.println("AT+CIPSHUT"); //close the connection
delay(100);
ShowSerialData();
```

Initialising the Sensors

Connecting to ThingSpeak

SCOPE FOR THE FUTURE

- ▶ With the help of big data analytics, a single farmers yield can increase exponentially while also reducing manual labour extensively.
- ▶ But imagine whole towns or governments using this to analyse crop yield and requirements in real time, without waiting for the end product.
- ▶ Monetary requirements can be incorporated on a private scale and regulation can be done for farmers and by farmers from the comfort of their own home.

CONCLUSION

- ▶ The challenges of an agriculture system in rural areas are lengthy in itself, and is quite hard to implement on a large scale. But with the right computing power provided by our system, coupled with the fact that it can be understood by any person due to its simple UI, this proves to be a product worth exploring and try to help our farmers and their livelihood. We depend on them, so it is about time we give back.