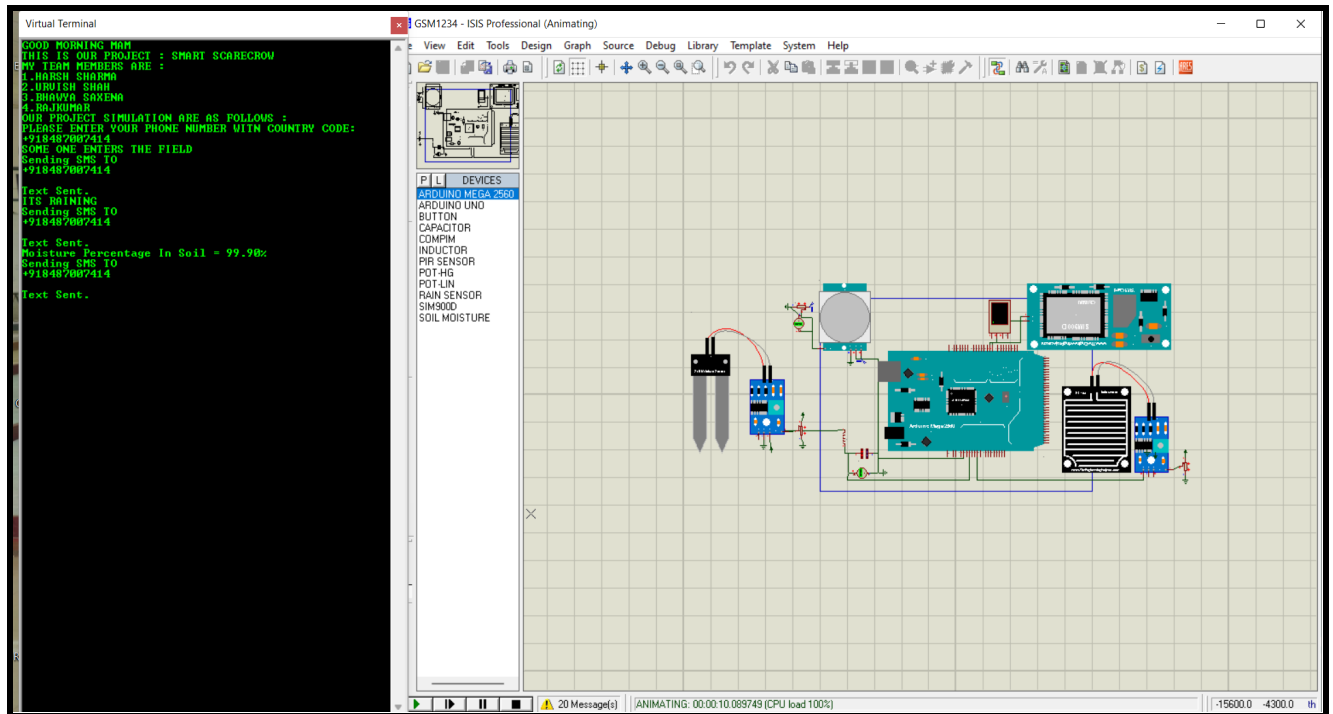
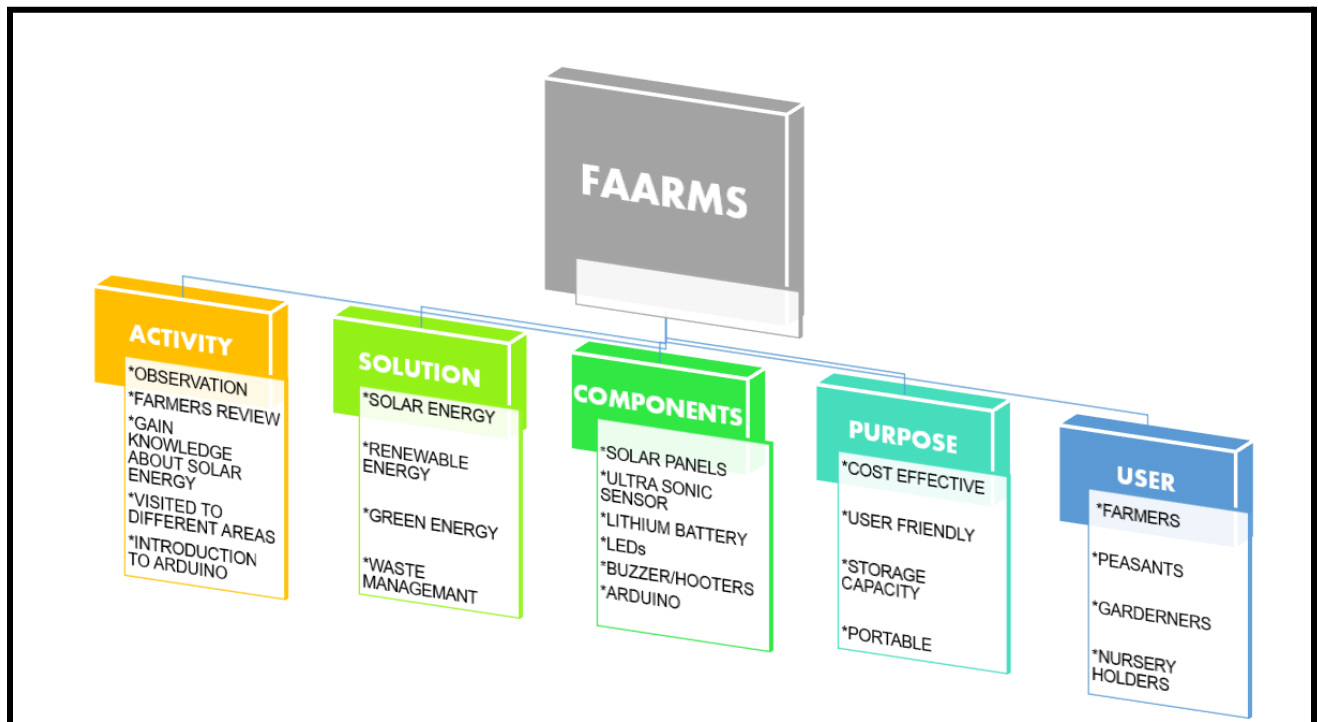


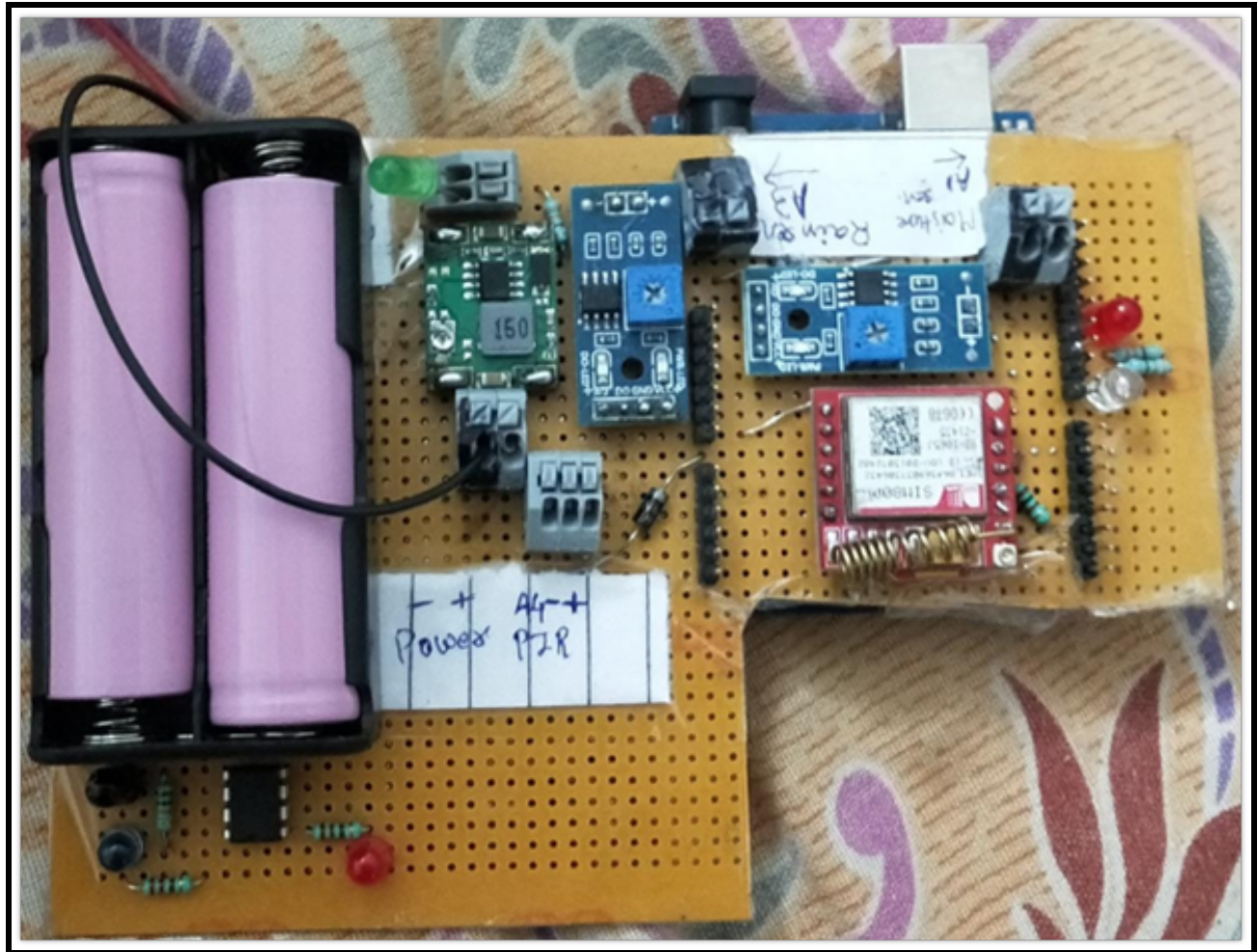
FAARMS - “ Fully Automated Animal Repellent Messenger System”

1



Simulation of prototype



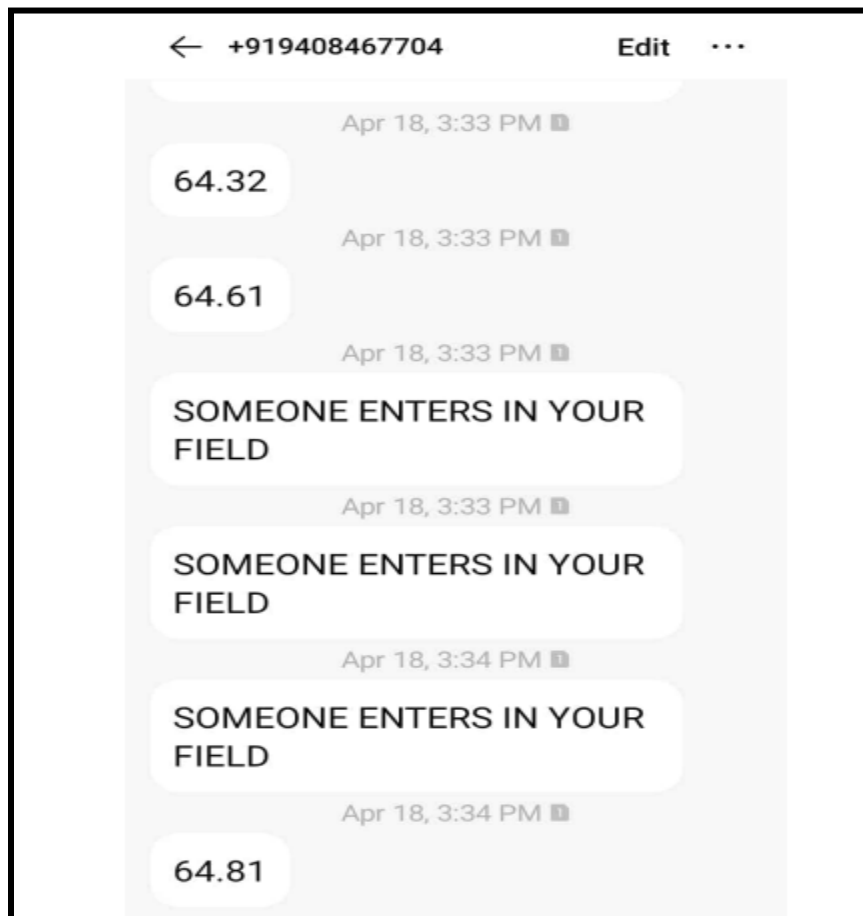


Hardware of Prototype testing.



Prototype demonstration in front of E-cell of Government Engineering College-Gandhinagar





Message Receive to end-user

Early stage Prototyping Code

```
#include <SoftwareSerial.h>
SoftwareSerial mySerial(3, 2); //SIM800L Tx & Rx is connected to Arduino #3 &
#2
int led = 13; // the pin that the LED is attached to
int EYELED = 8;          //EYE LED
int EYELED_State = LOW;
int PIR_led = 12;        // the pin that the PIR INDICATION LED is attached to
int PIR_SENSOR = A4;     // the pin that the sensor is attached to
int PIR_STATE = LOW ;    // by default, no motion detected
int PIR_VAL = 0; // variable to store the sensor status (value)
int P = 0;
int R = 0;
int S = 0;
int MA;
String PHONENUMBER = "";
const unsigned long EYELED_DELAY = 500;//3600000; //in ms
const unsigned long eventTime_1_BUTTON = 30000;//3600000; //in ms
unsigned long previousTime_mode1 = 0;
unsigned long previousTime_mode2 = 0;
const int RAIN_SENSOR_D = A3;
float RAIN_SENSOR_VAL;
float MOISTURE_SENSOR_A = A1;
float MOISTURE_SENSOR_value ; // variable to store the sensor status
(value)
void setup()
{ // put your setup code here, to run once:
  Serial.begin(9600);      // initialize serial
  Initializ_PIN();
  Serial.println("PLEASE ENTER YOUR PHONE NUMBER WITHN COUNTRY
CODE:");
  while (Serial.available() == 0)
  {
  }
  PHONENUMBER = Serial.readString();
```

```
Serial.println(PHONENUMBER);
Initializ_GSM();
}
void loop()
{
  unsigned long currentTime = millis();
  updateSerial();
  PIRSENSOR();
  MOISTURE_UPDATE();
} //8,12
void Initializ_PIN()
{
  pinMode(EYELED, OUTPUT);
  pinMode(PIR_led, OUTPUT);
  pinMode(led, OUTPUT);      // initialize LED as an output
  pinMode(PIR_SENSOR, INPUT); // initialize sensor as an input
  pinMode(RAIN_SENSOR_D, INPUT);
  pinMode(MOISTURE_SENSOR_A, INPUT);
}
void Initializ_GSM()
{
  mySerial.begin(9600);      //Begin serial communication with Arduino and
SIM800L
  Serial.println("Initializing...");
  delay(1000);
  mySerial.println("AT");    //Once the handshake test is successful, it will back
to OK
  updateSerial();

}
void updateSerial()
{
  delay(100);
  while (Serial.available())
  {
    mySerial.write(Serial.read()); //Forward what Serial received to Software Serial
Port
```

```
}
while (mySerial.available())
{
  Serial.write(mySerial.read()); //Forward what Software Serial received to Serial
  Port
}
}
void TEXT_MODE()
{
  mySerial.println("AT+CMGF=1"); // Configuring TEXT mode
  updateSerial();
  mySerial.println("AT+CMGS=\"\" + PHONENUMBER + \"\""); //change ZZ with
  country code and xxxxxxxxxxxx with phone number to sms
  updateSerial();
}
void SENDSMS()
{
  updateSerial();
  mySerial.write(26);
}
void RAIN_SENSOR()
{
  // Serial.println(digitalRead(RAIN_SENSOR_D));
  if (digitalRead(RAIN_SENSOR_D) == LOW)
  {
    if (R <= 1)
    {
      // Serial.println("Digital value : wet");
      TEXT_MODE();
      mySerial.print("ITS RAINING IN THE FIELD"); //text content
      SENDSMS();
      updateSerial();
      R++;
    }
  }
  else
  {
```

```
    R = 0;
  }
}
void MOISTURE_SENSOR()
{
  MA = analogRead(MOISTURE_SENSOR_A);
  MOISTURE_SENSOR_value = ( 100 - ( (MA / 1023.00) * 100 ) );
  if (MOISTURE_SENSOR_value <= 5)
  {
    if (S <= 1)
    {
      TEXT_MODE();
      mySerial.print("MOISTURE IS LESS THAN 5%;PLEASE WATERED YOUR
CROP"); //text content
      SENDSMS();
      updateSerial();
      S++;
    }
  }
  else
  {
    S = 0;
  }
}
void PIRSENSOR()
{
  PIR_VAL = digitalRead(PIR_SENSOR); // read sensor value
  if (PIR_VAL == HIGH)
  {
    RAIN_SENSOR();
    MOISTURE_SENSOR();
    if (PIR_STATE == LOW)
    {
      if (P <= 1)
      {
        TEXT_MODE();
        mySerial.print("SOMEONE ENTERS IN YOUR FIELD"); //text content
```



```
    SENDSMS();
    P++;
    RAIN_SENSOR();
    MOISTURE_SENSOR();

}
PIR_STATE = HIGH;    // update variable state to HIGH
}

}
else
{
    RAIN_SENSOR();
    MOISTURE_SENSOR();
    if (PIR_STATE == HIGH)
    {
        PIR_STATE = LOW;    // update variable state to LOW
        P = 0;
        RAIN_SENSOR();
        MOISTURE_SENSOR();
    }
}
}

void MOISTURE_UPDATE()
{
    unsigned long currentTime = millis();
    while (currentTime - previousTime_mode1 >= eventTime_1_BUTTON)
    {
        TEXT_MODE();
        mySerial.print(MOISTURE_SENSOR_value); //text content
        SENDSMS();
        previousTime_mode1 = currentTime;
    }
}
```