SPRINT DELIVERY – 1

Team ID	PNT2022TMID17579
Project Name	IoT-Enabled Smart Farming Application
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1. Introduction

The main aim of this project is to help farmers automate their farms by providing them with a Web App through which they can monitor the parameters of the field like Temperature, soil moisture, humidity and etc and control the equipment like water motor and other devices remotely via internet without their actual presence in the field.

2. Problem Statement

- Farmers are to be present at farm for its maintenance irrespective of the weather conditions. They have to ensure that the crops are well watered and the farm status is monitored by them physically.

- Farmer have to stay most of the time in field in order to get a good yield. In difficult times like in the presence of pandemic also they have to work hard in their fields risking their lives to provide food for the country.

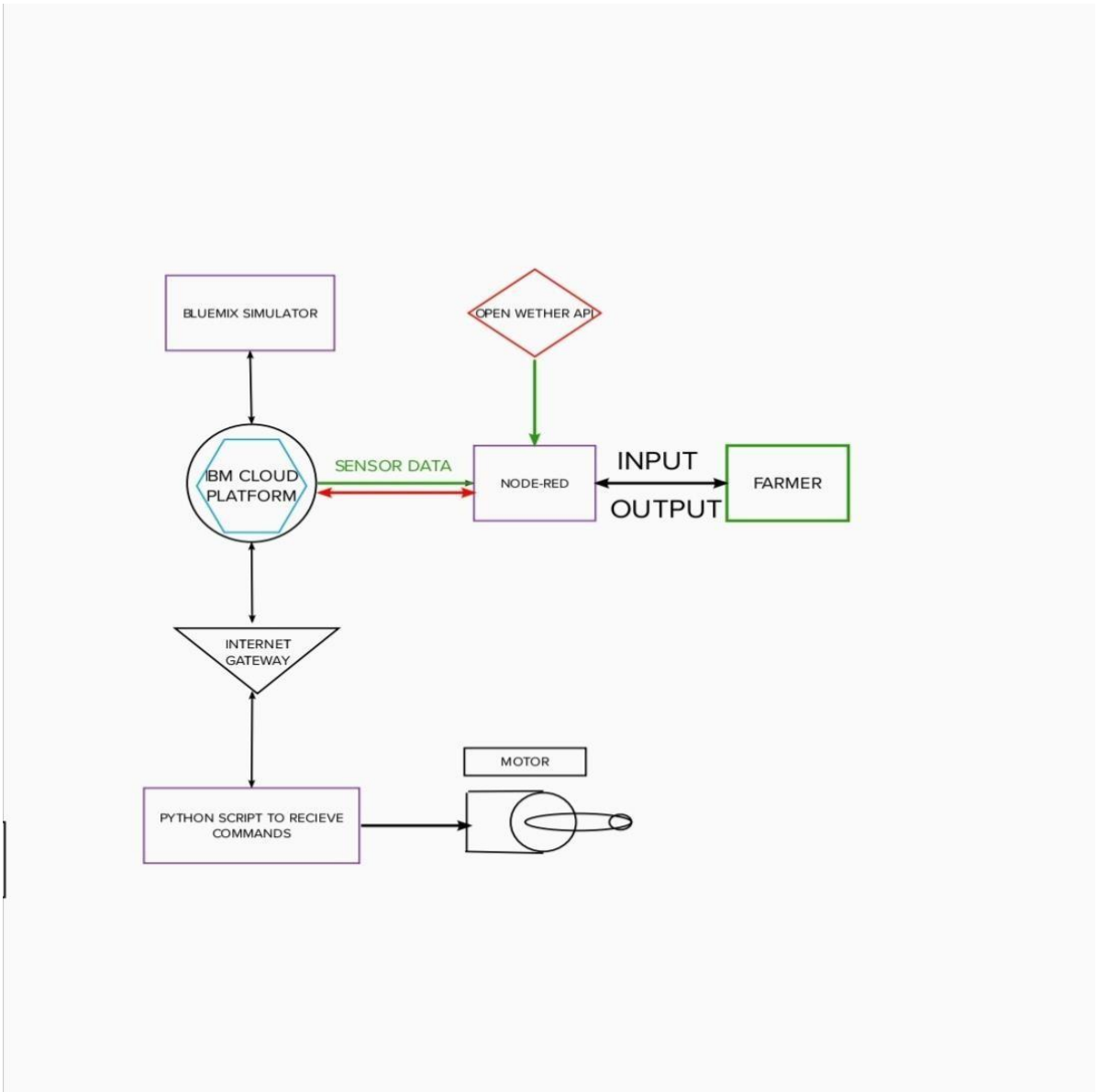
3. Proposed Solution

In order to improve the farmer's working conditions and make them easier, we introduce IoT services to him in which we use cloud services and internet to enable farmer to continue his work remotely via internet. He can monitor the field parameters and control the devices in farm.

Theoretical Analysis

Block Diagram

In order to implement the solution , the following approach as shown in the block diagram is used



Connecting Sensors with Arduino using C++ code

```
#include "Arduino.h" #include  "dht.h"

#include "SoilMoisture.h"

#define dht_apin A0
const int sensor_pin = A1; //soil moisture int pin_out = 9;  dht DHT; int c=0; void
setup()

{
pinMode(2, INPUT); //Pin 2 as INPUT pinMode(3, OUTPUT); //PIN  3 as OUTPUT pinMode(9,
OUTPUT);//output for pump

}        void  loop()

{

  if (digitalRead(2) ==
  HIGH)                                  // turn the LED/Buzz
                                         ON
  {
  digitalWrite(3, HIGH);


 delay(10000); // wait for 100 msecond digitalWrite(3, LOW); // turn
 the  LED/Buzz OFF delay(100);
 }
   Serial.begin(960
     0);  delay(1000);
    DHT.read11(dht_apin);            //temprature
                                     float  h=DHT.humidity;
```

```
float                t=DHT.temperate;
 delay(500);         Serial.begin(960);

  float moisture_percentage; int  sensor_analog;
                        sensor_analog       =
analogRead(sensor_pin);
moisture_percentage = ( 100 - ( (sensor_analog/1023.00) * 100 ) );  float
m=moisture_percentage; delay(1000); if(m<40)//pump
{ while(m<40)
{
digitalWrite(pin_out,HIGH);    //open pump sensor_analog  =
analogRead(sensor_pin);
moisture_percentage = ( 100 - ( (sensor_analog/1023.00) * 100 )
); m=moisture_percentage; delay(1000);
}

digitalWrite(pin_out,LOW);                    //closepump
} if(c>=0)
{
mySerial.begin(9600);                      delay(15000);
Serial.begin(9600);
delay(1000);
Serial.print("\r"); delay(1000);
Serial.print((String)"update-
>"+(String)"Temprature="+t+(String)"Humidity="+h+(String)"Moisture="+m);
delay(1000);

   }

}
```

Circuit Diagram