**Codes for the 12c communication project**

Master(keypad code)

#include <Keypad.h>

#include <Wire.h>

#include<SoftwareSerial.h>

#define SLAVE\_ADDR 9

const byte ROWS = 4;

const byte COLS = 3;

char hexaKeys[ROWS][COLS] = {

  {'1', '2', '3'},

  {'4', '5', '6'},

  {'7', '8', '9'},

  {'\*', '0', '#'}

};

byte rowPins[ROWS] = {9, 8, 7, 6};

byte colPins[COLS] = {5, 4, 3};

Keypad customKeypad = Keypad(makeKeymap(hexaKeys), rowPins, colPins, ROWS, COLS);

void setup(){

  Serial.begin(9600);

  Wire.begin();

}

void loop(){

  char customKey = customKeypad.getKey();

  if(customKey){

    Serial.println(customKey);

    Wire.beginTransmission(SLAVE\_ADDR);

    Wire.write(customKey);

    Wire.endTransmission();

  }

}

Slave1(soil Moisture)

// C++ code

//

int moisture = 0;

#include <Adafruit\_LiquidCrystal.h>

Adafruit\_LiquidCrystal lcd\_1(0);

void setup()

{

  pinMode(A0, OUTPUT);

  pinMode(A1, INPUT);

  Serial.begin(9600);

  pinMode(8, OUTPUT);

  pinMode(9, OUTPUT);

  pinMode(10, OUTPUT);

  pinMode(11, OUTPUT);

  pinMode(12, OUTPUT);

  lcd\_1.begin(16, 2);

  lcd\_1.print("Soil moisture: ");

}

void loop()

{

  // Apply power to the soil moisture sensor

  digitalWrite(A0, HIGH);

  delay(10); // Wait for 10 millisecond(s)

  moisture = analogRead(A1);

  // Turn off the sensor to reduce metal corrosion

  // over time

  digitalWrite(A0, LOW);

  Serial.println(moisture);

  digitalWrite(8, LOW);

  digitalWrite(9, LOW);

  digitalWrite(10, LOW);

  digitalWrite(11, LOW);

  digitalWrite(12, LOW);

  if (moisture < 200) {

    digitalWrite(12, HIGH);

  } else {

    if (moisture < 400) {

      digitalWrite(11, HIGH);

    } else {

      if (moisture < 600) {

        digitalWrite(10, HIGH);

      } else {

        if (moisture < 800) {

          digitalWrite(9, HIGH);

        } else {

          digitalWrite(8, HIGH);

        }

      }

    }

  }

  delay(100); // Wait for 100 millisecond(s)

  lcd\_1.setCursor(0, 1);

  lcd\_1.print(moisture);

  lcd\_1.setBacklight(1);

  delay(500); // Wait for 500 millisecond(s)

  lcd\_1.setBacklight(0);

  delay(500); // Wait for 500 millisecond(s)

}

Slave2(display/Output)

// C++ code

//

#include <Adafruit\_LiquidCrystal.h>

#include<Wire.h>

#define SLAVE\_ADDR 9

int rd;

Adafruit\_LiquidCrystal lcd\_1(0);

void setup()

{

  lcd\_1.begin(16, 2);

  lcd\_1.print("enter no");

  Wire.begin(SLAVE\_ADDR);

  Wire.onReceive(receiveEvent);

  Serial.begin(9600);

  Serial.println("I2C slave");

}

void receiveEvent(int bytes){

  rd=Wire.read();

  Serial.println(rd);

}

void loop()

{

  lcd\_1.setCursor(0, 1);

  lcd\_1.print(rd);

  lcd\_1.clear();

  lcd\_1.setBacklight(1);

  delay(500); // Wait for 500 millisecond(s)

  lcd\_1.setBacklight(0);

  delay(500); // Wait for 500 millisecond(s)

}