**GROUP 9**

**EXPERIMENT 2A**

**AIM: DATA PUBLISH IN THINGSPEAK USING ANALOG SENSOR LM35**

**APPARATUS :**

1. NodeMCU( ESP8266 12E Board)
2. LM 35 Sensor
3. Breadboard
4. Jumper Wires

**BLOCK DIAGRAM:**

ThingSpeak IoT Cloud Server

**NodeMCU**

**LM 35 Sensor**

**Fig 1A**

* We are going to send humidity data to thingSpeak using LM 35, ESP8266 module.
* The NodeMCU ESP8266 Module 12E requests humidity readings from the LM 35 sensor;
* We have to  upload a program code to ESP8266 module; the uploaded program code on ESP8266 will accept data which will be forwarded to ThingSpeak platform via Wi-Fi connection.
* Then the collected data of humidity will be sent to the Serial Monitor.

**CODE:**

#include <WiFiClient.h>;

#include <ESP8266WiFi.h>;

#include <ThingSpeak.h>;

const char ssid[] = "Codermaker"; // your network SSID (name)

const char pass[] = "babi1pal"; // your network password

int val;

int tempPin=A0;

WiFiClient client;

unsigned long myChannelNumber = 1381052;

const char \* myWriteAPIKey = "WXMICDRT4OZWJ7U3";

void setup()

{

WiFi.begin(ssid,pass);

ThingSpeak.begin(client); // Initialize ThingSpeak

}

void loop()

{

val=analogRead(tempPin);

float mV=(val/1024.0)\*3300;

float cel=mV/10;

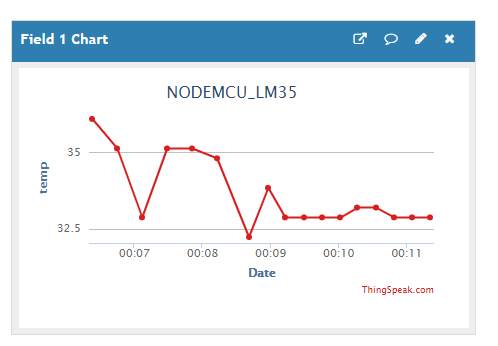
Serial.println(cel);

delay(1000);

ThingSpeak.setField(1,cel);

ThingSpeak.writeFields(myChannelNumber, myWriteAPIKey);

}

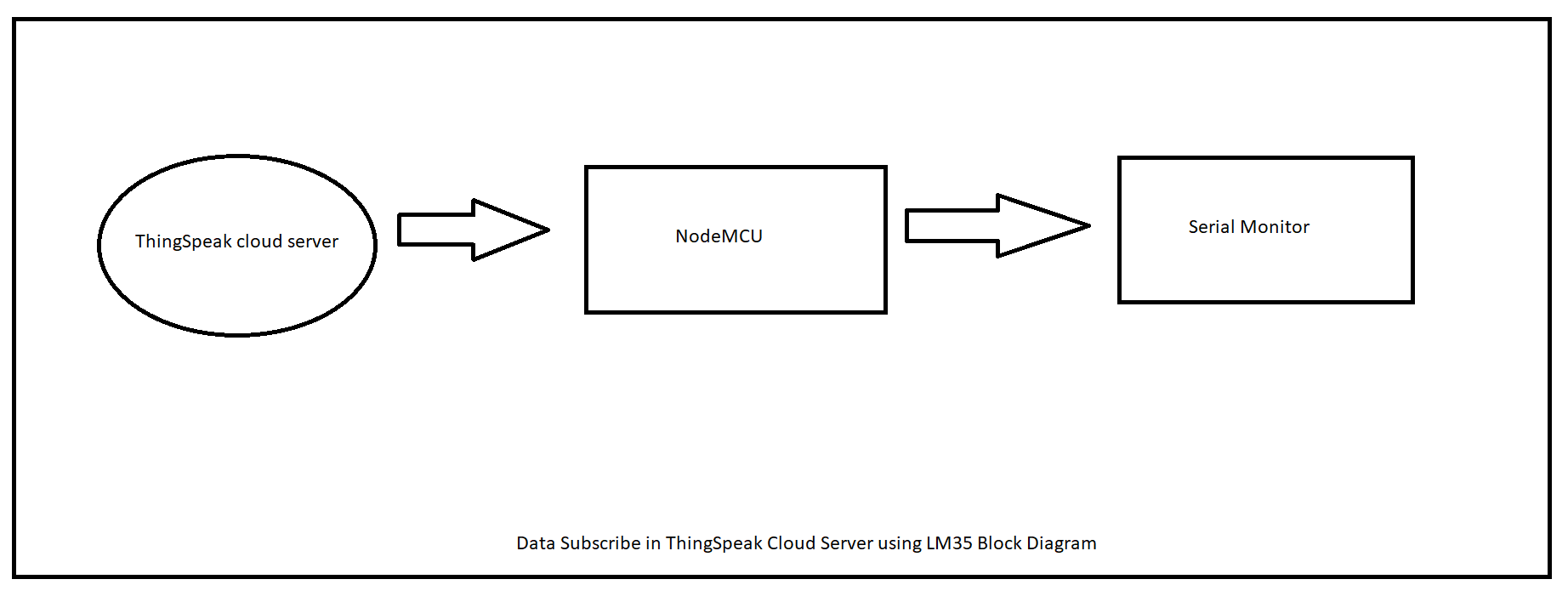
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**FIG :1B**

**EXPERIMENT 2B**

**Objective:- Data Subscribe in ThingSpeak IOT cloud Server using LM35 analog sensor.**

**Block Diagram:-**

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**FIG:1A**

**Explanation of the Block Diagram:-**

LM35 sensor is connected to NODE MCU and NODE MCU is connected to the ThingSpeak cloud server using the Authentication key given during the registration . Data is subscribe from the ThingSpeak cloud using the http protocol.

**Apparatus:-**

* ESP8266 Wifi SOC
* LM35 sensor
* Breadboard
* Connecting Wires
* ThingSpeak Cloud account.
* Wifi Internet Connection

**Programming:-**

#include <ESP8266WiFi.h>;

#include <WiFiClient.h>;

#include <ThingSpeak.h>;

const char\* ssid = "Codermaker";

const char\* password = "babi1pal";

WiFiClient client;

unsigned long myChannelNumber = 1381052;

const char \* myReadAPIKey ="U8UV5HLDB7QDD9GI";

int fieldnumber = 1;

int a;

void setup() {

Serial.begin(9600);

WiFi.begin(ssid, password);

ThingSpeak.begin(client);

}

void loop() {

a = ThingSpeak.readFloatField(myChannelNumber,fieldnumber,myReadAPIKey);

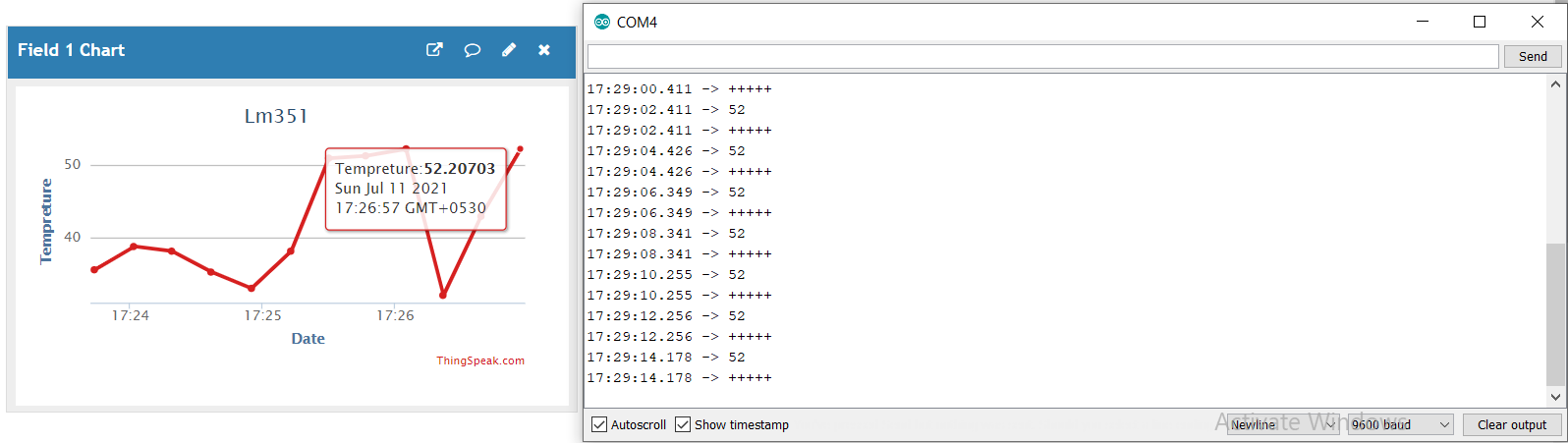
Serial.println(a);

Serial.println("+++++");

delay(1000);

}

**Result:-**

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**FIG :2B**