SMART ELECTRIC VEHICLES MINOR

Experiment 2

AIM: To interface analog voltage input to ESP32

OBJECTIVE: To write a code in Arduino IDE and interface motor using relay

THEORY:

The circuit connections are made as follows:

Pin 1 of the LM35 goes into +3v of the NodeMCU.

Pin 2 of the LM35 goes into Analog Pin A0 of the NodeMCU.

Pin 3 of the LM35 goes into Ground Pin (GND) of the NodeMCU.

Before getting the Celsius reading of the temperature, the analog output voltage from LM35 must first be read from the Vout pin of LM35. This will be the raw value divided by 1024 times 3300. It is divided by 1024 because a span of 1024 occupies 3.3v. Here we get the ratio of the raw value to the full span of 1024 and then multiply it by 3300 to get the millivolt value. Since the output pin can give out a maximum of 3.3 volts (1024), 1024 represents the possible range it can give out.

SIMULATION CODE:

```
// initializes or defines the output pin of the LM35 temperature
sensor
int outputpin= A0;
//this sets the ground pin to LOW and the input voltage pin to high
void setup() {
Serial.begin(9600);
 }
 void loop()
//main loop {
```

```
int analogValue = analogRead(outputpin);
float millivolts = (analogValue/1024.0) * 3300;
//3300 is the voltage provided by NodeMCU
float celsius = millivolts/10;
Serial.print("in DegreeC= ");
Serial.println(celsius);
 //---------- Here is the calculation for Fahrenheit ----------//
float fahrenheit = ((celsius * 9)/5 + 32);
Serial.print(" in Farenheit= ");
Serial.println(fahrenheit);
delay(1000);
 }


DNS WIFI Manager:
//wifi manager programming
//main body
#include
#include
#include
#include
void setup(){
// put your setup to run once
Serial.begin(115200);
//Object you have to decide
 WiFiManager wifiManager;
Serial.println("Connecting my device...");
//Auto connect command mode
wifiManager.autoConnect("subhradevice","12345");
Serial.println("Connected");
}
void loop(){
//your main program
```
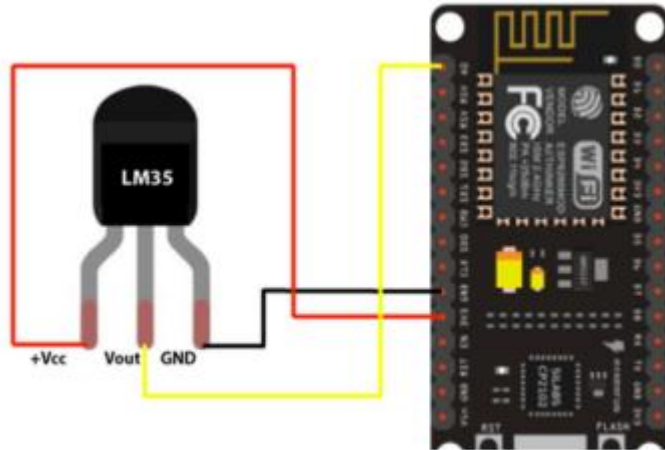
}

SIMULATION RESULT:

CONCLUSION: After performing this experiment we were able control motor using relay with ESP32

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