The Embedded System Project :

-Button Turns on and off a light emitting diode (LED) connected to digital pin 13,

When pressing a pushbutton attached to pin 2.

-there is a Temp.sensor connected to pin 3

The circuit:

- LED attached from pin 13 to ground
- pushbutton attached to pin 2 from +5V
- 10K resistor attached to pin 2 from ground
- Temp.sensor attached to pin 3 from ground

```
const int buttonPin = 2;     // the number of the push button pin
const int ledPin =  13;      // the number of the LED pin
int buttonState = 0;         // variable for reading the pushbutton status
int ThermistorPin = 4;       // the number of the sensor pin
int Vo;
float R1 = 10000;
float logR2, R2, T;
float c1 = 1.009249522e-03, c2 = 2.378405444e-04, c3 = 2.019202697e-07;


void setup() {
  pinMode(ledPin, OUTPUT);                 // initialize the LED pin as an output
   pinMode(buttonPin, INPUT);              // initialize the pushbutton pin as an input
  Serial.begin(9600);
}
```

```
void loop() {

 buttonState = digitalRead(buttonPin);

 if (buttonState == HIGH) {
  digitalWrite(ledPin, HIGH);
  Serial.print("pressed: ON");
  delay(1000);
 }
 else
 {
  digitalWrite(ledPin, LOW);
  Serial.print("OFF");
  delay(1000);
 }

 Vo = analogRead(ThermistorPin);
 R2 = R1 * (1023.0 / (float)Vo - 1.0);
 logR2 = log(R2);
 T = (1.0 / (c1 + c2*logR2 + c3*logR2*logR2*logR2));
 T = T - 273.15;
 T = (T * 9.0)/ 5.0 + 32.0;

 Serial.print("Temperature: ");
 Serial.print(T);
 Serial.println(" F");

 delay(3000);
}
```