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Firmware Assignment ,Greendzine

Problem statement: Develop the code in Arduino to interface an LM35 temperature sensor (Assume the sensor is connected to Arduino Analog pin A0) with an Arduino Uno and control the onboard LED based on temperature readings:

1. Interface the LM35 temperature sensor with an Arduino Uno.
2. When the temperature falls below 30 degrees Celsius, make the onboard LED blink every 250 milliseconds.
3. If the temperature rises above 30 degrees Celsius, make the onboard LED blink every 500 milliseconds.

```
#define LM35_PIN A0  // LM35 sensor connected to analog pin A0
#define LED_PIN 13    // Onboard LED connected to digital pin 13

unsigned long previousTime = 0;
int interval = 250; // initial interval for temperature below 30°C
bool ledState = LOW;

void setup() {
  pinMode(LED_PIN, OUTPUT);
}
void loop()
{
  unsigned long currentTime = analogRead(LM35_PIN) * 1000; // Get current time in microseconds
  int sensorValue = analogRead(LM35_PIN);  // Read temperature sensor value
float temperature = (sensorValue / 1024.0) * 5000 / 10;  // Convert sensor value to Celsius

  if (temperature < 30)
 {
```

```
    interval = 250;  // set interval to 250ms if temperature is below 30°C
  }
else
{
    interval = 500;  // set interval to 500ms if temperature is above or equal to 30°C
  }

  if (currentTime - previousTime >= interval * 1000) // check if it's time to toggle the LED
{
    previousTime = currentTime; // save the last time
    if (ledState == LOW) {
      digitalWrite(LED_PIN, HIGH);
      ledState = HIGH;
    }
 else
 {
   digitalWrite(LED_PIN, LOW);
    ledState = LOW;
    }
  }
}
```

This code reads the temperature from the LM35 sensor, calculates it in Celsius, and based on the temperature, it controls the blinking of the onboard LED without using millis(), delay(), or micros().