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Temperature Based Fan Speed Controller Using IOT

[1] *Mr. V.Nagababu*, [2]*M.Naga Yaswanth Pavan Kumar*,

[3]*Ch.Sai Pravallika*,[4]*N.Angel Sundari.*

1 Assistant Professor, Department of EEE, SRGEC, Gudlavalleru,

2Undergraduate Student, Department of EEE, SRGEC, Gudlavalleru,

3Undergraduate Student, Department of EEE, SRGEC, Gudlavalleru,

4Undergraduate Student, Department of EEE, SRGEC, Gudlavalleru,

5Undergraduate Student, Department of EEE, SRGEC, Gudlavalleru,

Abstract:

Temperature-based fan speed controllers are used in various applications such as electronic devices, home automation systems, and industrial processes. In this research, an IoT-based temperature-based fan speed controller is designed and implemented. The system consists of a temperature sensor, a microcontroller, and a Wi-Fi module. The temperature sensor senses the temperature of the environment, and the microcontroller processes the temperature data and controls the speed of the fan based on the temperature readings. The Wi-Fi module is used to connect the system to the internet and control the fan speed remotely using a mobile application. The proposed system provides energy-efficient operation by controlling the fan speed according to the temperature of the environment. The experimental results show that the system can effectively control the fan speed based on the temperature readings.

Keywords: ***Temperature-based fan speed controller, IoT, Temperature sensor, Microcontroller, Wi-Fi module.***

1. Introduction:

Fan speed controllers are used to control the speed of a fan in various applications. Temperature-based fan speed controllers are used in electronic devices, home automation systems, and industrial processes to provide energy-efficient operation. In this project, an IoT-based temperature-based fan speed controller is designed and implemented. The system senses the temperature of the environment using a temperature sensor and controls the speed of the fan based on the temperature readings. The system is connected to the internet using a WiFi module, which allows remote control of the fan speed using a mobile application.

2. System Design:

The proposed system consists of a temperature sensor, a microcontroller, and a Wi-Fi module. The temperature sensor senses the temperature of the environment and sends the temperature readings to the microcontroller. The microcontroller processes the temperature data and controls the speed of the fan based on the temperature readings. The Wi-Fi module is used to connect the system to the internet and control the fan speed remotely using a mobile application. The block diagram of

the system is shown in Figure 1.1

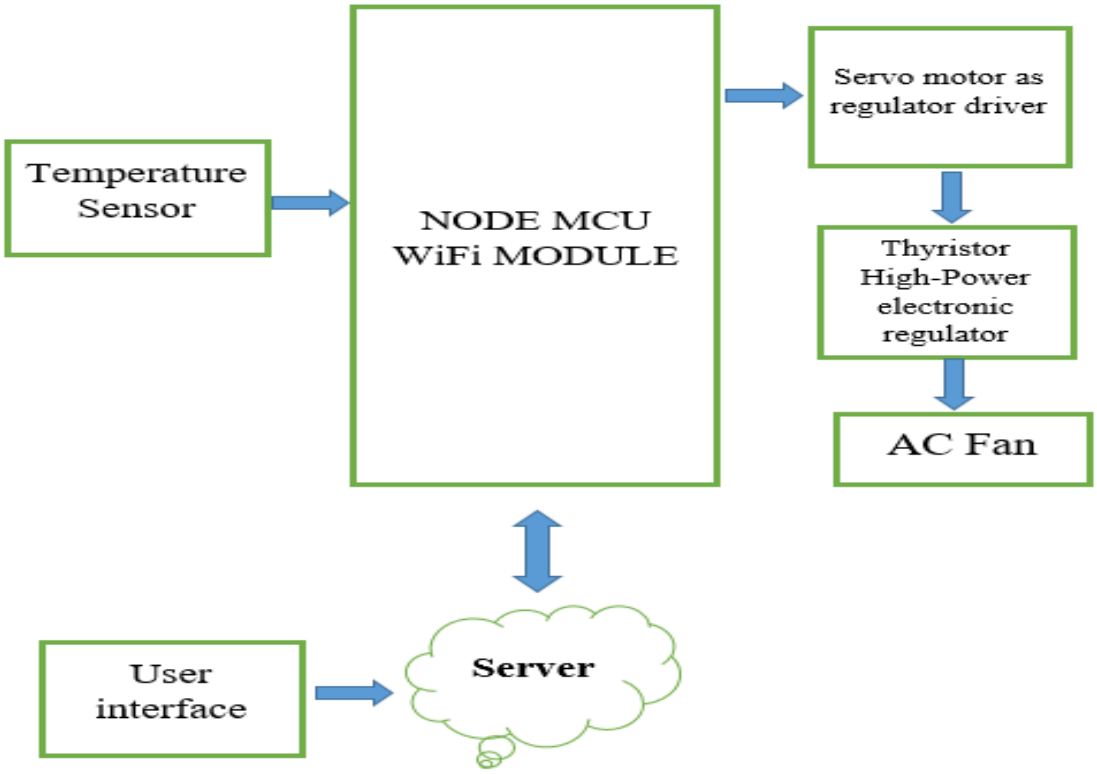


Figure.1.1. Block Diagram of proposed Fan Speed Controller

2.1 Temperature Sensor:

The temperature sensor used in the system is the LM35 temperature sensor. It is a precision IC temperature sensor with an output voltage proportional to the Celsius temperature. The output voltage of the sensor varies linearly with the temperature. The LM35 sensor is a low-cost and easy-to-use sensor that provides accurate temperature readings.

Fig 2.1 Temperature Sensor

2.2 Wi-Fi Module:

The Wi-Fi module used in the system is the ESP8266 Wi-Fi module. It is a low-cost and easy-to-use module that provides Wi-Fi connectivity to the system. The Wi-Fi module is used to connect the system to the internet and control the fan speed remotely using a mobile application.

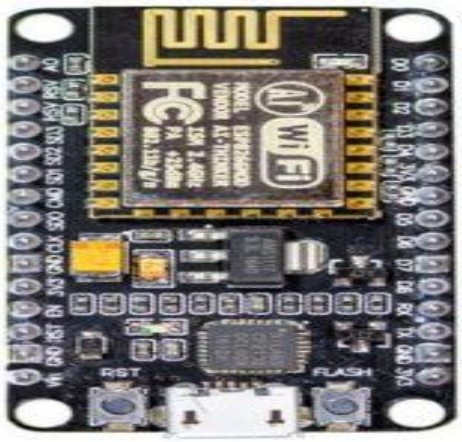


Figure 2.2 Wi-Fi Module

2.3 Servo motor

A servo motor is a type of motor that can rotate with great precision. Normally this type of motor consists of a control circuit that provides feedback on the current position of the motor shaft, this feedback allows the servo motors to rotate with great precision. If you want to rotate an object at some specific angles or distance, then you use a servo motor. It is just made up of a simple motor that runs through a servo mechanism.

Figure 2.3 Servo motor

2.4 Thyristor high-power electronic regulator

2000W Thyristor SCR Voltage Regulator is SCR Dimmer that can be used to control 220V Appliances. It can be used as a light dimmer, fan speed controller store temperature controller. It is easy and simple to use and can control appliances up to 2000W

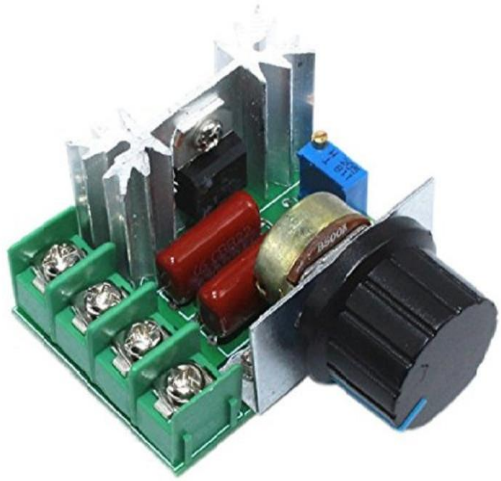


Figure 2.4 Electronic regulator

2.5 Software: Arduino IDE

The Arduino Integrated Development Environment - or Arduino Software (IDE) - contains a text editor for writing code, a message area, a text console, a toolbar with buttons for common functions, and a series of menus. It connects to the Arduino hardware to upload programs and communicate with them

Figure 2.5 Arduino ID

2.6 Web Application:

The Web application used to control the fan speed is the Adafruit IO. Adafruit.io is a cloud service - that just means we run it for you and you don't have to manage it. You can connect to it over the Internet. It's meant primarily for storing and then retrieving data but it can do a lot more than just that!

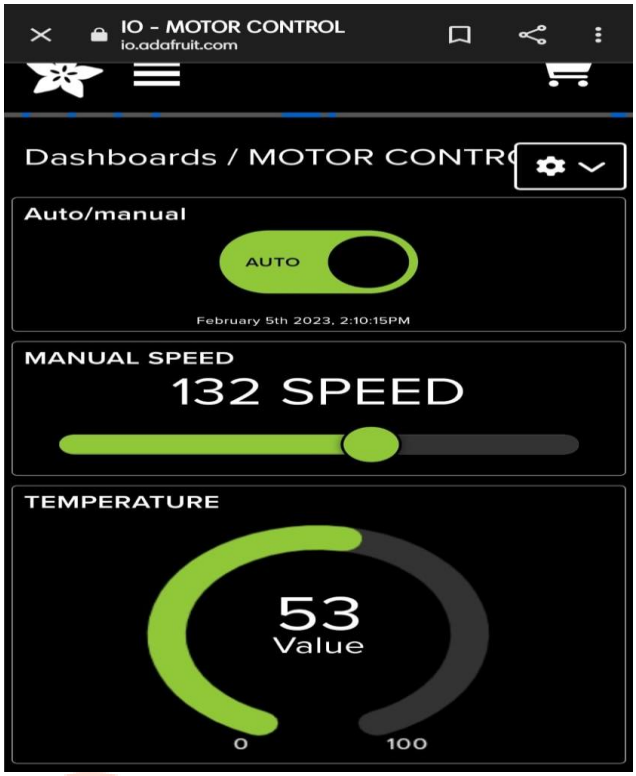
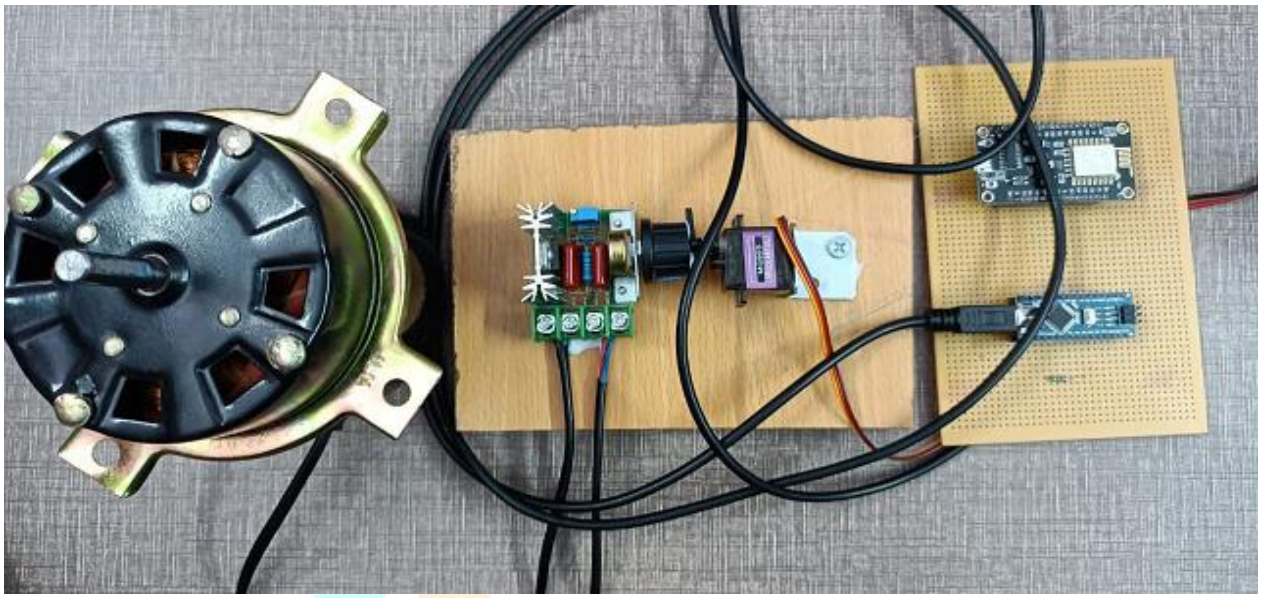


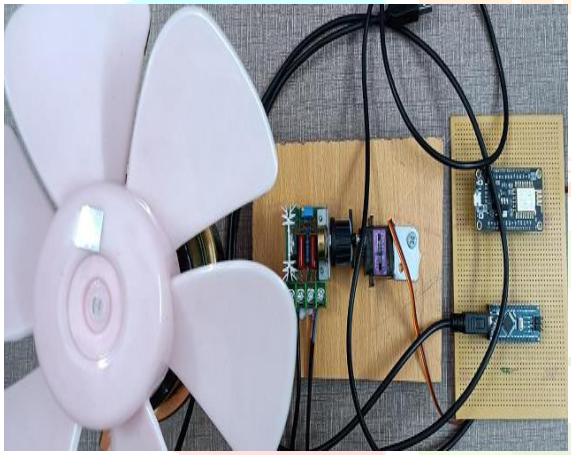
Figure 2.6 Web Application

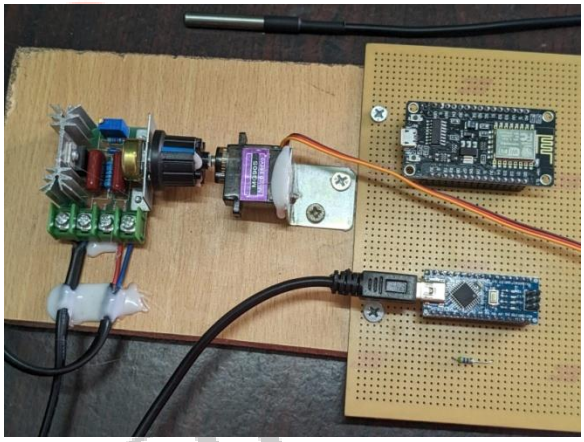
3.Results:

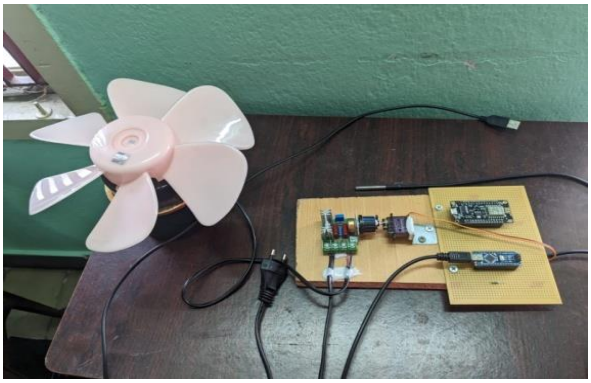
The Temperature Based Fan Speed Controller Using an IOT system is capable of controlling the speed of a fan based on the temperature of the room. The system is designed to be controlled remotely using a mobile phone or a computer. The temperature sensor accurately measures the temperature of the room, and the microcontroller calculates the fan speed based on the temperature. The Wi-Fi module enables the system to be connected to the internet, making it easy to control remotely. The system can be used to improve the comfort level in a room by automatically adjusting the fan speed based on the temperature.

Figure.3.1: Hard ware kit of Temperature Based Fan Speed Controller Using an IOT









4. Conclusion:

The Temperature Based Fan Speed Controller Using IoT is a useful project that can be used to control the speed of a fan based on the temperature of the room. The system can be controlled remotely using a mobile phone or a computer, making it easy to use. The system can be used to improve the comfort level in a room by automatically adjusting the fan speed based on the temperature.

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