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Automatic Fan Speed Control System Using PID

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ABSTRACT: One of the biggest issues during the weather changes is to regulate the fan speed depend on the temperature variation. Even the remote-controlled fan always requires the distance coverage and also the user always need to carry the remote with them. This also creates the discomfort for the old age peoples and divyang. Modern technology provides the best solutions for this problem.

KEYWORDS: DHT11, PID, Temperature, Gain parameters, Power Supply

I. INTRODUCTION

PID controller needs to detect the room temperature and helps to control the room temperature. Fan speed variation occurs according to the temperature variation by measuring the temperature in room is first priority in the process to measure the temperature we are using DHT11 sensor. In this Arduino based upon the project, we are going to build a temperature-controlled fan by using Arduino.

II. OBJECTIVE

One senses the temperature by using humidity and temperature sensor namely DHT11. It may also be used for monitoring changes in environment system user-friendly optimized fan performance. This Proportional Integral Derivative (PID) controller logic along with the Pulse Width Modulation (PWM) duty cycle may change the speed of the fan gradually without creating any anomalies that affects the fan motor life cycle.

III. METHODOLOGY

By importing the PID logic the speed of the fan gets gradually increased or decreased without making a sudden change which makes the discomfort among the users. This PID controller logic along with the PWM duty cycle may change the speed of the fan gradually without creating any anomalies that affects the fan motor life cycle

IV. LITERATURE REVIEW

Implementation of PID Based Temperature Control System

Arduino Refers to An Open-Source Electronics Platform or Board & Software Used to Program It. SCR stands for Silicon Control Rectifier is control the room temperature. It Tells Speed of fan To Control the Fan Speed of The

Configuration Settings. Algorithms are Set According to The Variation of Fan Speed which can be controlled by Arduino or any micro controller.

Automatic Fan Speed Control System by PID

Temperature by using humidity and temperature sensor namely DHT 11. The tools which can we used byte 11 Sensor, Arduino IDE Software. IOT, can developing by technologies user Friendly for Old Age People, Power Consumption Is Less They control the voltage across the fan is controlled by a capacitor, the voltage across the fan determines the fan speed. By importing the pid logic the speed of the fan gets gradually increased or decreased without making a sudden change which makes the discomfort among the users.

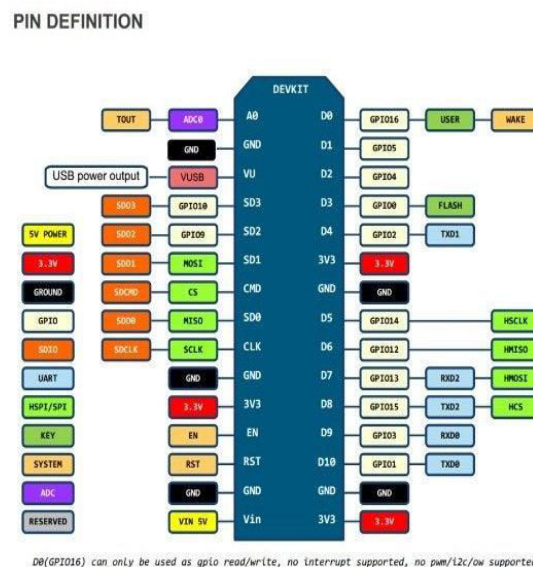
V. PROPOSED SYSTEM

A Microcontroller has been used for the main controlling system. LM35 sensor has been used for sensing temperature. The variation of the temperature will display On LCD Panel. No manual work needed. Electricity consumption is low Arduino is an open-source hardware and software company, exists of PID controller and using LM35 temperature sensor for building digital devices. Measuring the value of room temperature by depend upon fan speed rotates.

VI. BLOCK DIAGRAM

A circuit with LM35DZ temperature sensor. The speed can only be controlled stepwise. In addition, the power consumption in these types of conventional fans is high given the amount of air flow produced. Set up the connection as referred in the figure below Arduino ESP8266 Node Lua WIFI Controller board V3 to the relay

Step 1: Pin definition



Step 2: Hardware Installation

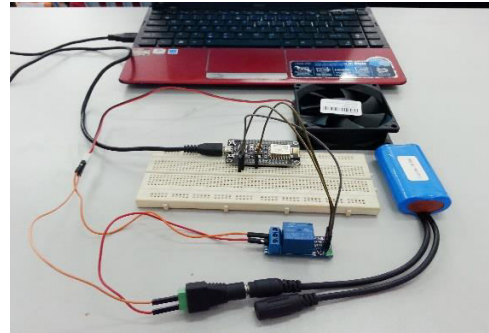
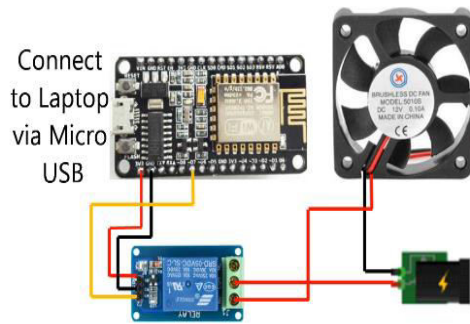


Fig. 2 Connect to Laptop via Micro USB Fig. 3 Connection of Power supply

Set up the connection as referred in the figure above

Arduino ESP8266 Node Lua WIFI Controller board V3 to the relay

1. D7 (GPIO13) to IN (OR you can change it to any GPIOs pin)
2. G to GND
3. 3V to VCC

Then connect positive terminal of battery to the common (c) of relay, negative terminal of battery connects to the fan's black wire and normally open (NO) of the relay connect to fan's red wire. Before program the Arduino ESP8266 Node M Lua WIFI Controller Board V3, user is required to install a driver. Please get the driver from here.

VII. RESULT

IF increases temperature and fan speed also raises automatically by using Arduino software using program of MATLAB coding with the help of heating the near to the DTH11 Sensor. It exists of IP Address of the website by helping of IOT Technology. With the help of network and verification of password for matching the IP Address of the program with measurement of room temperature fan speed rotates. If it becomes negative value of temperature, fan speed stops automatically.

VIII. CONCLUSION

PID controllers enters to the actuator controls the fan on/off by controls the cloud by development of environment. Math lab think speak pit by coding of IOT for excessing of monitoring. IP Address controls the ON/OFF and visualize the room temperature value. Fan is presence of single-phase motor it controls by the actuator SCR trigger motor on/off. Motor driver generates the PWM Signal of 0 to 5 volt its controls the fan speed. Set point is 20°C if it raises to 30°C Automatically fan is on by PID controller.

Air signal flows at reduces of temperature by relay Arduino is as simple as controlling any other output for usage of low voltage control signal from relay. we have already shown that the variable fan speed control in the server becomes stable as we use the proposed adaptive PID-based fan control scheme.

FUTURE SCOPE

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