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Temperature based fan speed controller

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ABSTRACT

This project is a standalone automatic fan speed controller that controls the speed of an electric fan according to the temperature. It may also be used for monitoring changes in environment. The LM-35 Analog Temperature devices interfaced to analog pin of Arduino board, where it has built in ADC which convert these analog reading and displaying it on an LCD, which indicate the temperature of the devices. This project is useful in process industries for maintenance and controlling of boilers temperature. This project is a self-contained automatic fan speed controller that regulates the speed of an electric fan to our specifications. This is closed due to the use of embedded technologies. The loop feedback control system is a highly effective and dependable system. A microcontroller (ATMega8 / 168 / 328) allows for dynamic and interactive control. Regulation is more rapid. The device is made possible by a liquid crystal display (LCD) pleasant to the consumer. The fan and the temperature that was sensed

Keywords— *Potholes, accidents, detect potholes, roads of Mumbai, ultrasonic sensor, GPS module, avoid potholes*

1. INTRODUCTION

Technologies are being introduced every day as technology advances. All is becoming more complex and understandable. The demand for cutting-edge technology and smart electronic systems is increasing. Microcontrollers are crucial in the production of smart systems because they provide the device with a brain. Microcontrollers are at the core of the modern generation of computers.

Intelligent technologies are being introduced every day as technology advances. Aortll is becoming more complex and understandable. There is a rise in the number of cutting-edge technology and smart electronics are in high demand. A framework Microcontrollers play a crucial role in today's world. The architecture of intelligent systems as a brain is entrusted to a framework Microcontrollers have evolved into the brains of many modern devices

2. GENERAL DESCRIPTION

2.1 Proposed Work

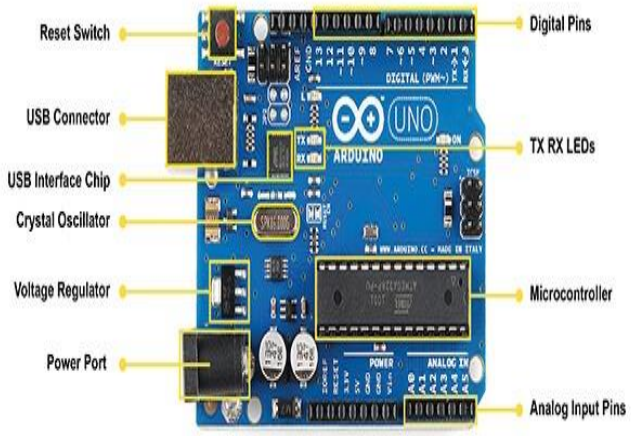
Microcontrollers play a critical role in the implementation of smart systems in the proposed systems. Microcontrollers have become an indispensable component of today's technologies presented on a regular basis. The topic of temperature-based fans is discussed in this article. Arduino-based speed control and monitoring system a framework. The cooling system is regulated by this system automatically dependent on the temperature of the room. In the proposed systems, microcontroller plays a vital role in the smart systems development. Microcontrollers have become an essential part in the present technologies that are being presented daily. This article discusses temperature-based fan speed control and monitoring system using an Arduino system. This system is used to control the cooling system automatically based on the room temperature. The system uses an Arduino board to implement a control system. Since this system is proposed to control the cooling system and it is very important to know Arduino controlled system well.

2.2 Description

The temperature-based fan speed control system can be done by using an electronic circuit using an Arduino board. Now Arduino board is very progressive among all electronic circuits, thus we employed Arduino boyard for fan speed control. The proposed system is designed to detect the temperature of the room and send that information to the Arduino board. Then the Arduino board executes the contrast of current temperature and set temperature based on the inbuilt program of the Arduino. The outcome obtained from the operation is given through the o/p port of an Arduino board to the LCD display of related data. The generated pulses from the board which is further fed to the driver circuit to get the preferred output to the fan.

2.3 Arduino

The Arduino Uno is Microcontroller board based on the ATmega328 (datasheet). It has 14 digital input/output pins, 6 analog inputs, a 16 MHz crystal oscillator , a USB connection, a power jack, an ICSP header, and a reset button. Each of the 14 digital pins and 6 analog pins on the Uno can be used as an input or output, under software control (using pin Mode(), digitalWrite(), and digitalRead() functions).



2.4 Temperature Sensor

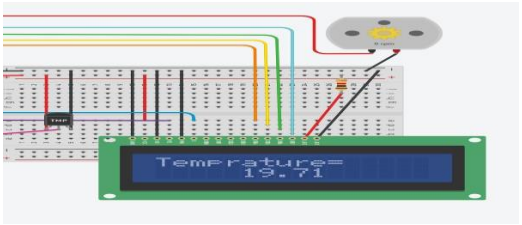
LM 35 is an integrated circuit temperature sensor which can be used to detect the temperature in a centigrade scale(−55°C to 150°C).The LM35's low output impedance, linear output, and precise inherent calibration make interfacing to readout or control circuitry it draws only 60mA from its supply, it has very low selfheating.In this system, it is used to adjust the HVAC (Humidity, Ventilation and AC) system in a home. LM 35 is less prone to oxidation and can measure high voltage range than that of thermocouples.

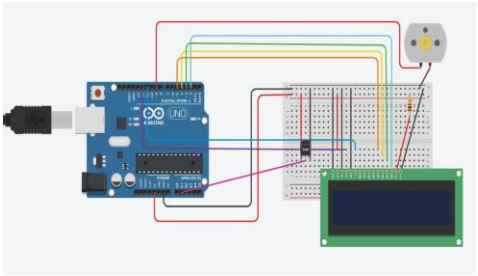
Features:

- Linear +10.0 mV/ degree Celsius Calibrated directly in degrees Celsius (centigrade)
- Temperature precision of 0.5 degrees Celsius (at +25 degrees Celsius)
- Suitable for temperatures ranging from -55 to +150 degrees Celsius.
- Suitable for use in remote locations
- Due to wafer-level trimming, the cost is low.
- Adapts to voltages ranging from 4 to 30 volts
- Present drains of less than 60 microamps
- Low self-heating temperature of 0.08 degrees Celsius

2.5 LCD

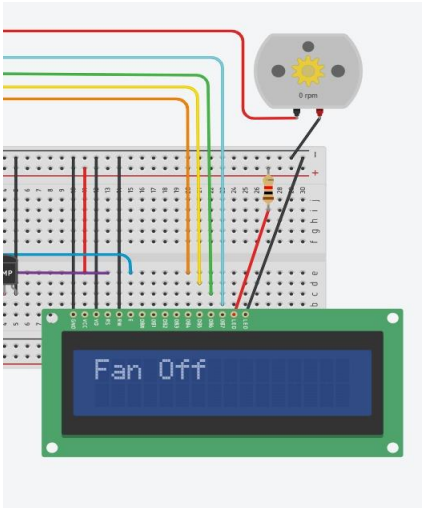
LCD stands for liquid crystal display. It is a dot matrix liquid crystal display that shows alphanumeric characters and symbols. LCD optical monitor 16X2.The temperature of the room has been shown in the device. Liquidity A crystal display screen is an electronic display module that can be used in many places. A diverse set of applications An LCD display with a resolution of 16x2 is very basic. It's a module that's widely used in a variety of products.



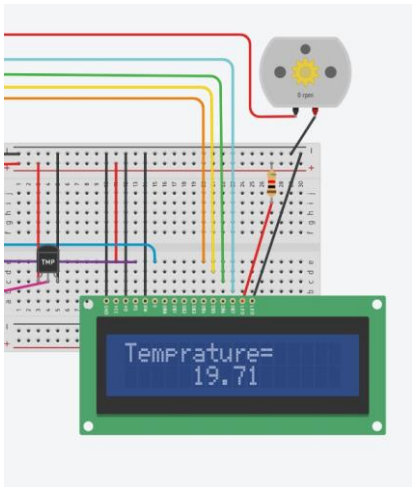


Circuit Diagram

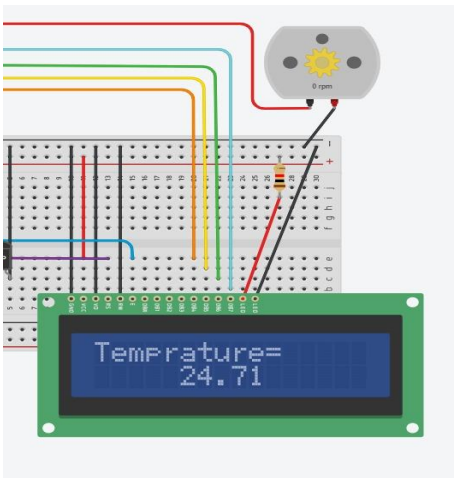
3. WORKING



Data sensed by temperature sensor



The received sensed values are used to control fan



Data Sensed by temperature sensor
The Received Sensed Values are used to control fan

4. CONCLUSION

For people who live in subtropical or tropical regions, running in hot temperatures is unavoidable. This paper proposed a wearable device to ensure people can remain safe when exercising outdoors. WHDD was designed to monitor the physical information of outdoor runners, and to determine the possibility of a heat stroke occurring while running. We used several sensors to monitor physiological information through the micro-controller, including skin resistance, heart rate, and body temperature data, combined with ambient temperature and humidity. The data was sent to an end device to calculate the risk level using fuzzy logic inference. The system detected the risk level and alerted user to watch their body status to prevent heat stroke from occurring. This device could allow everyone exercising in the heat to never worry their safety and be healthier.

5. ACKNOWLEDGEMENT

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We also thank Mr. Manish Belande our guide and mentor, for the valuable guidance and support she bestowed upon us in the context related to the components, software, and the vision of this project. It was an excellent and enlightening experience to work under the guidance of such a highly innov for people who live in subtropical or tropical regions, running in varying temperatures is unavoidable. This paper proposed a temperature-based fan speed controller to ensure people can remain in a constant Temperature. We used several sensors to monitor temperature information through the micro-controller, including temperature sensor combined with ambient temperature and humidity. The data was sent to an end device to calculate the optimum fan speed. The system detected the temperature and increases or decreases the fan speed accordingly.

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