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Iot Based Temperature Checking System

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Abstract - The System is entitled as "IoT Based Temperature Checking System" is developed using LM35-temperature sensor in Arduino UNO. The main objective of this project is checking the temperature using LM 35 sensor. The system identifies the human body temperature in degree Celsius. It utilizes Arduino Uno board in conjunction with ATmega328 chip. Arduino provides an open-source and easy-to-use programming tool, for writing code and uploading it to your board. It is often referred to as the Arduino IDE (Integrated Development Environment). An LM35 temperature sensor is used to detect the heat. When the system detects the temperature at high level of degree Celsius, it makes warning alarm.

Keyword: - Arduino, Temperature Sensor, Power supply, Buzzer, ATmega328 chip.

INTRODUCTION

Internet of Things (IoT) plays a pivotal part in our mundane daily life by controlling electronic devices using networks. The controlling is done by minutely observing the important parameters which generate vital pieces of information concerning the functioning of these electronic devices. Simultaneously, this information will transmit these vital statistics from the transmitting device as well as save the same on the cloud to access by the applications and supplementary procedures to use them. This scrutiny associates the outcomes of the environmental observances like the humidity and temperature measurements using sensors. The gathered information could be profitably used to produce actions like distantly dominant cooling, heating devices, or long-term statistics, which will be useful to control the same. The detected data are uploaded to the cloud storage through network and associate focusing on global attention onto IoT as a using android application. The system employs Arduino UNO. The experimental results show the live temperature and humidity of the surroundings and the soil moisture of any plant using Arduino UNO is mainly used here for checking the temperature and humidity sensor element. The sensors are used for measuring the

temperatures from the surroundings, storing displayed information with different devices. Here, cloud provisioning.

METHODOLOGY

LM35 is a Temperature sensor that outputs an analog signal which is proportional to the instantaneous temperature. The output voltage can easily be interpreted to obtain a temperature reading in Celsius. The advantage of LM35 over thermistor is it does not require any external calibration. The coating also protects it from self-heating. Low cost and greater accuracy make it popular among hobbyists, DIY circuit makers, and students. Many low-end products take advantage of low cost greater accuracy and used LM35 their products. A LM35 is a temperature sensor designed to detect and respond to the presence of a heat. Responses to a detected flame depend on the installation, but can include sounding an alarm, and activating a temperature checking system.

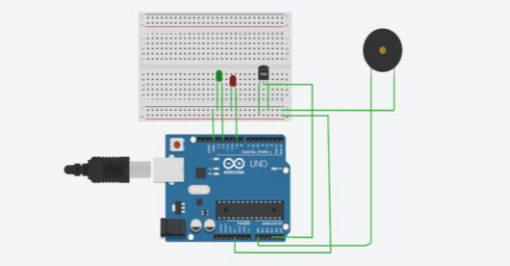

Fig: 1 circuit diagram of Temperature checking system

In this project we are discussing about Temperature checking system(fig 1) using IOT sensor. It is used to monitor the temperature using Sensors. The system identifies the human body temperature in degree Celsius. When detect the temperature increase , it will make a buzzer ON. The temperature is decrease, it will make a buzzer OFF. The output is display in the serial monitor.

BLOCK DIAGRAM

The LM35 series are precision integrated-circuit temperature devices with an output voltage linearly proportional to the Centigrade temperature. The LM35 device has an advantage over linear temperature sensors calibrated in Kelvin, as the user is not required to subtract a large constant voltage from the output to obtain convenient Centigrade scaling. The LM35 device does not require any external calibration or trimming to provide typical accuracies of ±¼°C at room temperature and ±¾°C over a full −55°C to 150°C temperature range. Lower cost is assured by trimming and calibration at the wafer level. The low-output impedance, linear

output, and precise inherent calibration of the LM35 device makes interfacing to readout or control circuitry especially easy. The device is used with single power supplies, or with plus and minus supplies. As the LM35 device draws only 60 μA from the supply, it has very low self-heating of less than 0.1°C in still air.

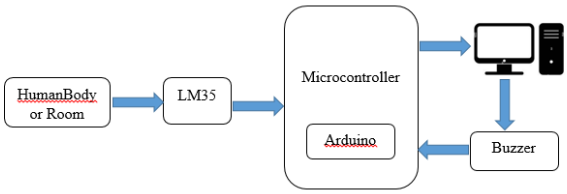

Fig: 2 block diagram of Temperature checking system

Every Arduino board needs a way to be connected to a power source. The Arduino UNO can be powered from a USB cable coming from your computer or a wall power supply (like this) that is terminated in a barrel jack. In the fig 2 above the USB connection is labeled **(1)** and the barrel jack is labeled **(2)**.

DESCRIPTION OF HARDWARE

Arduino UNO

The Arduino UNO (fig 3) is a standard board of Arduino. Here UNO means 'one' in Italian. Itwas named as UNO to label the first release of Arduino Software. It was also the first USB board released by Arduino. It isconsidered as the powerful board used invarious projects. Arduino.cc developed the Arduino UNO board. Arduino UNO is basedon an ATmega328P microcontroller. It is easy to use compared to other boards, such as the Arduino Mega board, etc. The board consists of digital and analog Input/Output pins (I/O), shields, and other circuits. The Arduino UNO includes 6 analog pin inputs, 14 digital pins, a USB connector, a power jack, and an ICSP (In-Circuit Serial Programming) header.

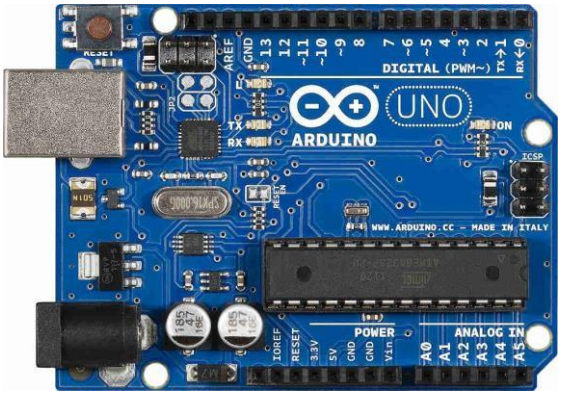

Fig :3 Arduino UNO Board

LM35 SENSOR

LM35 is a Temperature sensor (fig : 4) that outputs an analogy signal which is proportional to the instantaneous temperature. The output voltage can easily be interpreted to obtain a temperature reading in Celsius. The advantage of LM35 over thermistor is it does not require any external calibration. The coating also protects it from self-heating. Low cost and greater accuracy make it popular among hobbyists, DIY circuit makers, and students. Many low-end products take advantage of low cost greater accuracy and used LM35 their products. A LM35 is a temperature sensor designed to detect and respond to the presence of a heat. Responses to a detected flame depend on the installation, but can include sounding an alarm, and activating a temperature checking system. When used in applications such as industrial furnaces, their role is to provide confirmation that the furnace is properly lit; in these cases, they take no direct action beyond notifying the operator or control system. A temperature checking sensor can often respond faster and more accurately than a smoke or heat detector due to the mechanisms it uses to detect the flame.

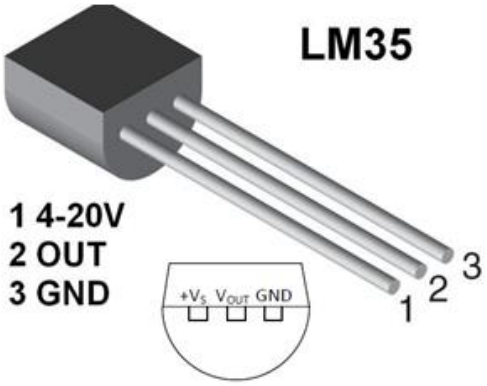

Fig 4: LM35 Sensor

The LM35 is an integrated circuit sensor that can be used to measure temperature with an electrical output proportional to the temperature (in °C). It can measure temperature more accurately than a using a thermistor. The sensor circuitry is sealed and not subject to oxidation. The LM35 generates a higher output voltage than thermocouples and may not require that the output voltage be amplified. The LM35 has an output voltage that is proportional to the Celsius temperature.

ADVANTAGE

The system is flexible so that there is a lot of scope to update the system. As the system is flexible the system can be changed for any changes come in future. The developed system portable has been completed which is customized for the satisfaction of the user. The system has been analyzed designed and developed with meticulous care and can be executed without any faults or errors.

RESULT

System implementation (fig 6) is the realization of an application, or execution of a plan, idea, model design (fig 7), specification, standard, algorithm or policy. In computer science, an implementation is a realization of a technical specification or algorithm as a program, software component, or other computer system through computer programming and deployment.

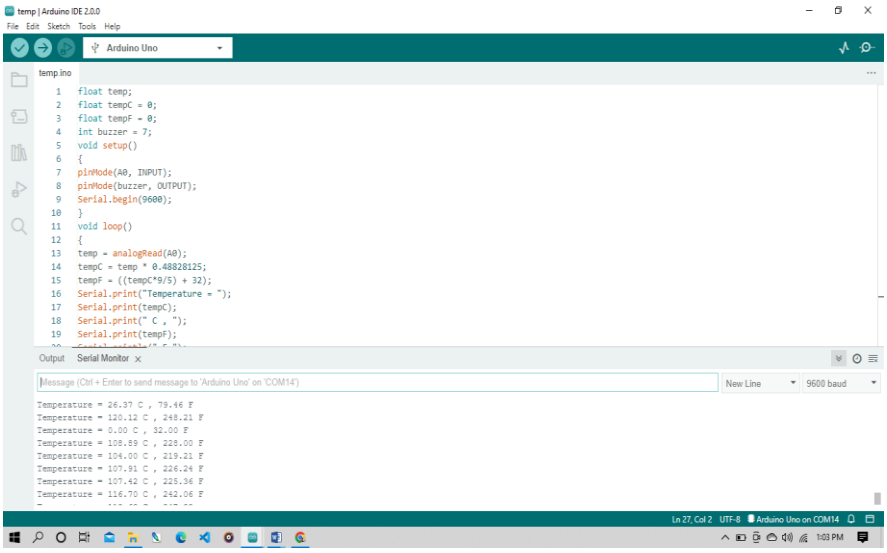

Fig 6: Verifying Source Code

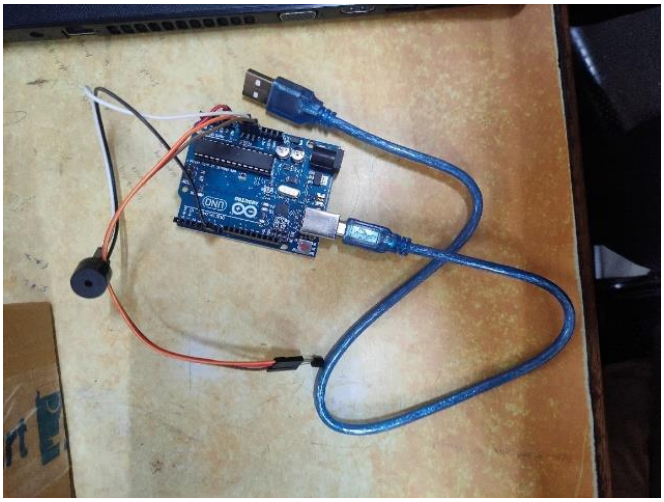

Fig 7: After Connection Done

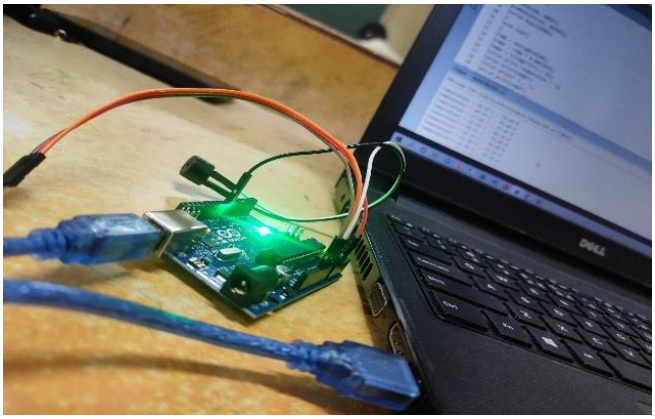

Fig 8: Final Output

CONCLUSION

The System entitled as "**IOT BASED TEMPERATURE CHECKING SYSTEM**" was successfully developed. The system is detecting the human body temperature (fig 8). The project has been designed to full fill the finding the temperature automation process. This system extremely user friendly. The system is tested with real data.

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