PSG COLLEGE OF TECNOLOGY

(AUTONOMOUS INSTITUTION)

COIMBATORE-641 004

TOPIC:**MPMC PROJECT REPORT ON TEMPERATURE ALERT SYSTEM**

BRANCH: ELECTRONICS AND COMMUNICATION ENGINEERING

SUBJECT:MICROPROCESSOR AND MICROCONTROLLER

SUBJECT CODE:19L503

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CONTENTS

TEMPERATURE ALERT SYSTEM

OBJECTIVE:

To produce an alert signal through led glowing when the room temperature goes above a certain limit(25 degree celcius)

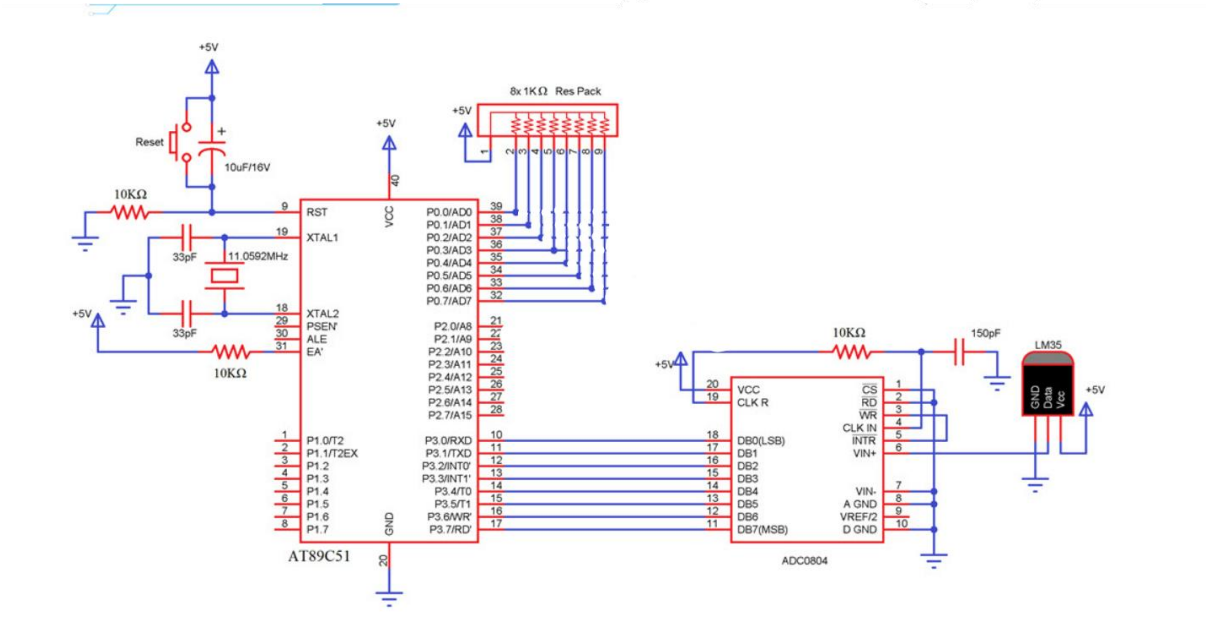
PRINCIPLE:

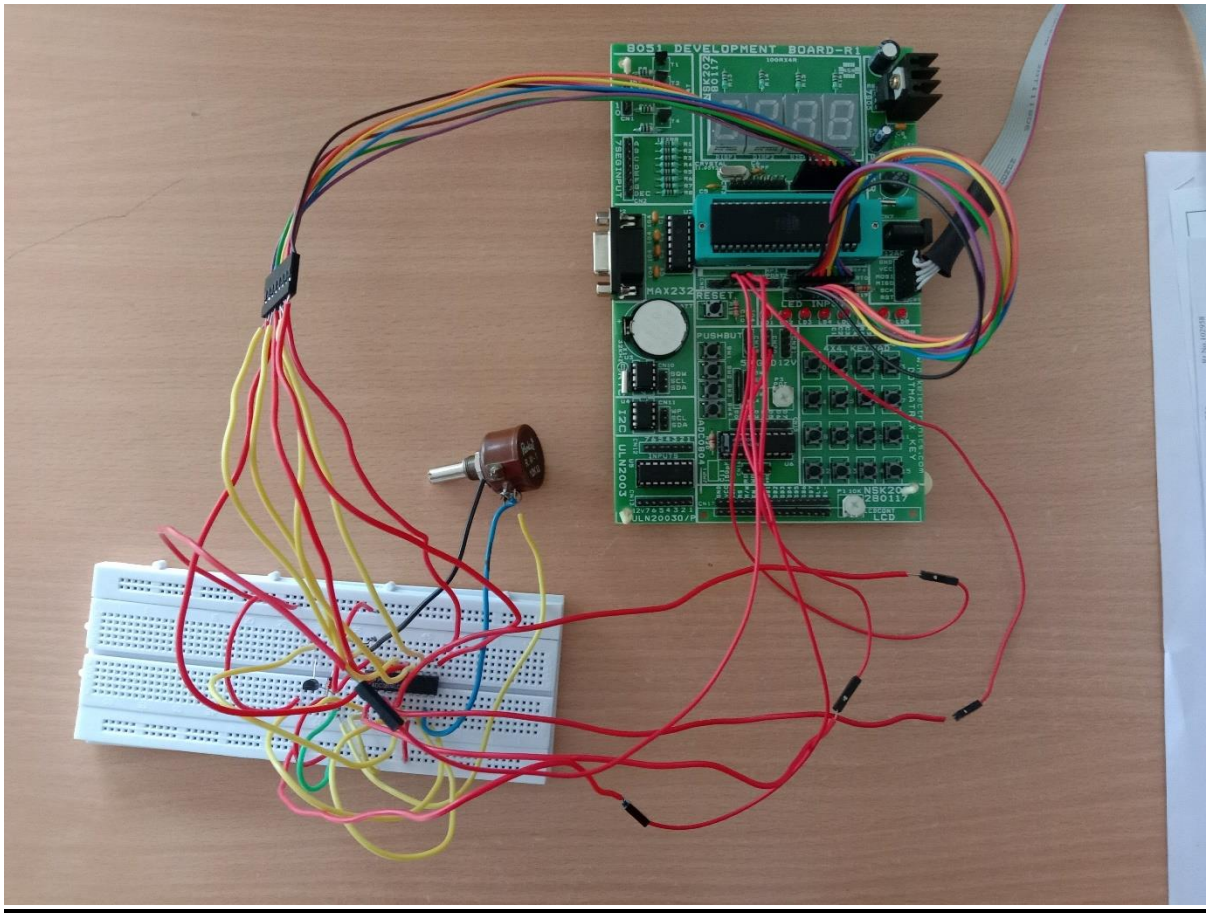
Lm35 temperature sensor will measure room analog temperature and passes it to ADC0804 for analog to digital conversion. 8051 microcontroller fetches temperature value from adc0804 analog to digital converter.The digital output from ADC is moved to port P1 of the microcontroller 8051.Based on the value present in the input port,0FFH is moved to port P0(declared as output port),which glows the 8 leds present if the temperature is above 25 degree celcius

COMPONENTS REQUIRED:

- 8051 microcontroller (You can also use any other)
- ADC0804 (Analog to digital converter)
- LM35 temperature sensor
- power supply(5 volts)
- Bread board (to make circuit)
- Resistor-2.5k
- Potentiometer-10k
- Zener diode(LM336)

CIRCUIT DIAGRAM:





DESIGN PROCESS:

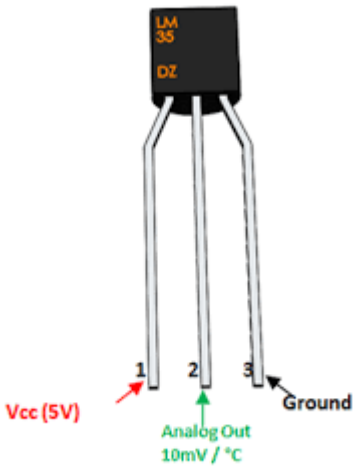
CODE:

MPMC_PRO.A51

```
1           MOV P1,#11111111B  //declaring port p1 as input port
2           MOV P0,#00000000B  //initializing p0 as output port
3
4           BEGIN: SETB P2.5  //rd high
5                  CLR P2.6   //wr low
6                  SETB P2.6  //low to high pulse
7            WAIT:JB P2.7,WAIT
8                 CLR P2.5      //rd low to receive data
9                 MOV A,P1   //moves the digital output from ADC
10                CJNE A,#16H,L1
11                JMP BEGIN
12                L1: MOV P0,#0FFH
13                END
14
```

HOW lm35 WORKS:

LM35 outputs voltage in Celsius. 10 milli volts output by LM35 represents 1 degree Celsius. So if LM35 outputs 90 mV it means the temperature is 9 degree Celsius.



APPLICATION OF TEMPERATURE ALERT SYSTEM:

1) Digital temperature monitoring in laboratories:

Temperature plays a crucial role in defining the chemical composition or integrity of volatile compounds and biological samples respectively. They can render useless and affect experimental conclusions or even worse, the patient's health, if not kept under a strict temperature range. It is, therefore, vital for laboratories and test clinics to maintain a controlled environment for successful testing on these samples.

With temperature alert system, a laboratory can conduct tests and store samples in a controlled environment, to determine accurate results.

2) Food Safety Compliances:

Developing and maintaining a consistent batch of food items that stands true according to the standards set by food regulatory authorities is important for the food and beverage industry. However, for fast food firms with the franchise in

different corners of the world, maintaining these quality and safety standards can be a major challenge.

The food industry hence uses heater/freezer fitted chambers to develop a controllable environment for their goods. temperature temperature alert system allows the food industry to monitor the temperature of these chambers allowing them to ensure that the regulatory compliances are met. They can remotely monitor the temperature of the items and confirm the quality of their products.

3) Warehouse and Inventory Management:

Some products can be sensitive to humidity & temperature. Storing them in a normal warehouse can result in their corrosion and are thus required to be stored in a temperature-controlled environment. By using heaters/freezers, the temperature and humidity of the warehouses can be maintained to ensure the quality of a specific type of product. By using based temperature alert system, a warehousing and inventory manager can track and remotely change the temperature of the warehouse. This reduces inspection costs and helps companies to ensure the quality of their products.

4) Goods in Transit:

Connecting manufacturers, distributors, and consumers are one of the many crucial applications of a supply chain. During the distribution phase, the quality of the products being shipped is affected adversely due to changing environmental conditions.

Hence, companies develop special containers to maintain a suitable environment for their products while they are shipped from one location to another. Using temperature monitoring sensors allows companies to track environmental parameters of a trailer en-route even from a remote location. This solution along with advanced telemetry establish transparency in a cold supply chain and allow companies to maintain the quality of their products.

5) Equipment Monitoring:

Manufacturing based companies depend a lot on the quality and efficiency of their machines. Sudden equipment breakdown can result in bottlenecks that further affects the performance of the whole plant.

As rise in temperature is one of the implications of the machines' wear and tear, temperature monitoring sensors can be used to detect issues affecting the performance of the machines. This helps the companies to reduce equipment downtime and conduct effective condition-based maintenance (CBM) on them whenever they undergo an unexpected malfunction or breakdown.

CONCLUSION:

In our project, we designed and implemented an efficient temperature monitoring and controlling system with an 8051 trainer kit. Output was verified by setting the temperature at different levels and it was found that the led turn on and off when the device crosses the set value. It is very useful for the people who are disable. There is still much room for future development that would enhance the system and increase its business value.