FAN SPEED CONTROL BY SENSING ROOM TEMPERATURE

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1. ABOUT THE PROJECT

Description:

This is an automation project which is used to control the speed of fan automatically with the help of an temperature sensor which is used to sense the temperature here and sends the data forward by which means the fan speed is controlled to maintain a specific temperature at a pre-defined value of it.

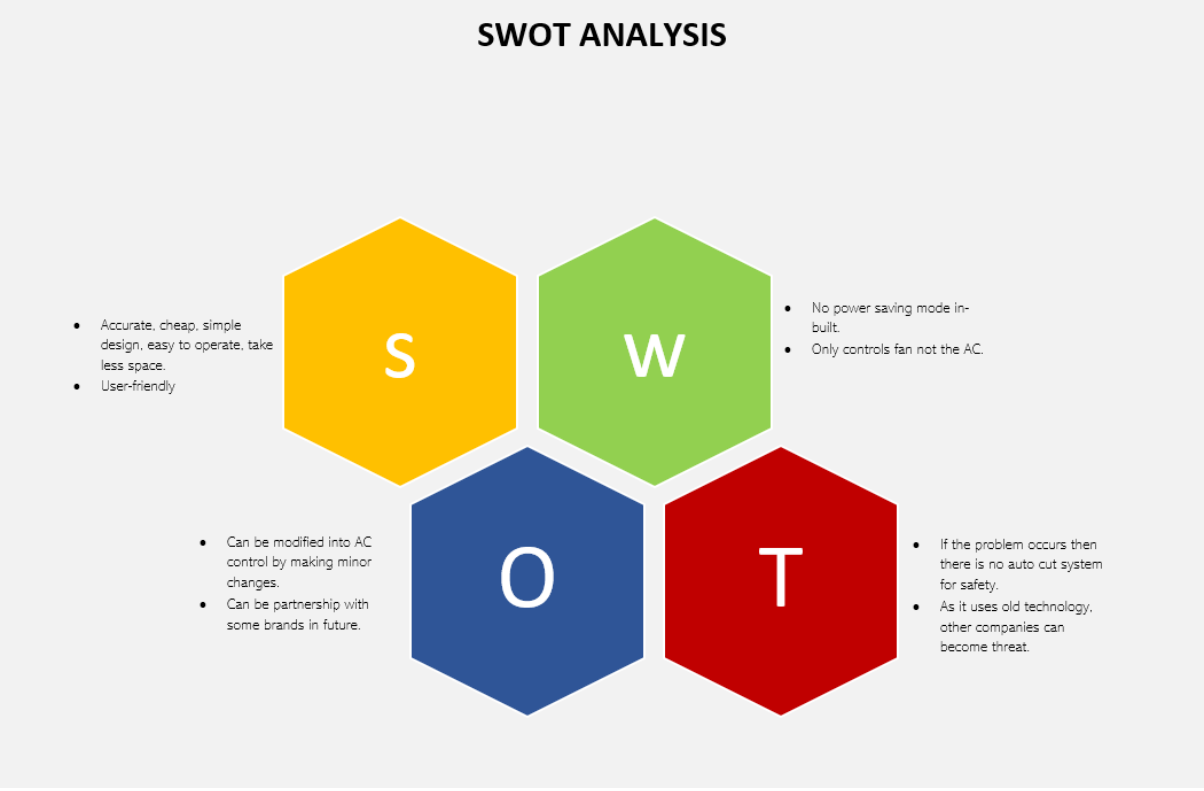
Features:

- LCD Display shall be provided to know the temperature value we set.
- Room Temperature shall be displayed on LCD.
- Fan is on or off shall be displayed on LCD.
- Fan speed shall be displayed on LCD.
- LED's shall be provided for the funtioning display of embedded system.

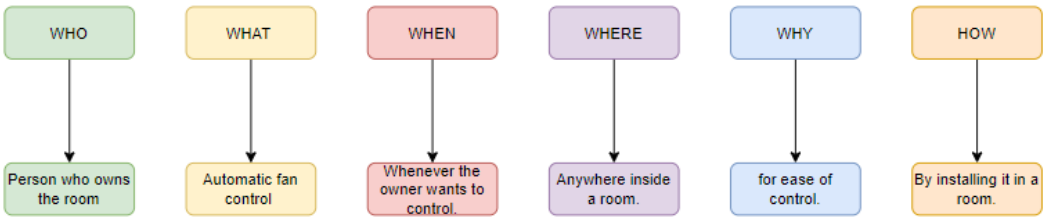
Working state of art:

The main focus of this project is to control the tempereature and humidity of a perticular room in which it is being implimented with the help of sensors and the microcontroller. Here an LCD display is being used to display some information for user interfacing purpose. As if we see the growth of the technology around us, these types of technologies are the becoming the future of these industries.

SWOT:



5W & 1H



2. REQUIREMENTS

High level requirements:

ID	Description
HR01	system shall control fan speed by sensing the temperature.
HR02	there shall be an LCD display for the user interfacing.
HR03	LED's shall be used for showing the status of the system.
HR04	system shall sense the temerature and humidity.

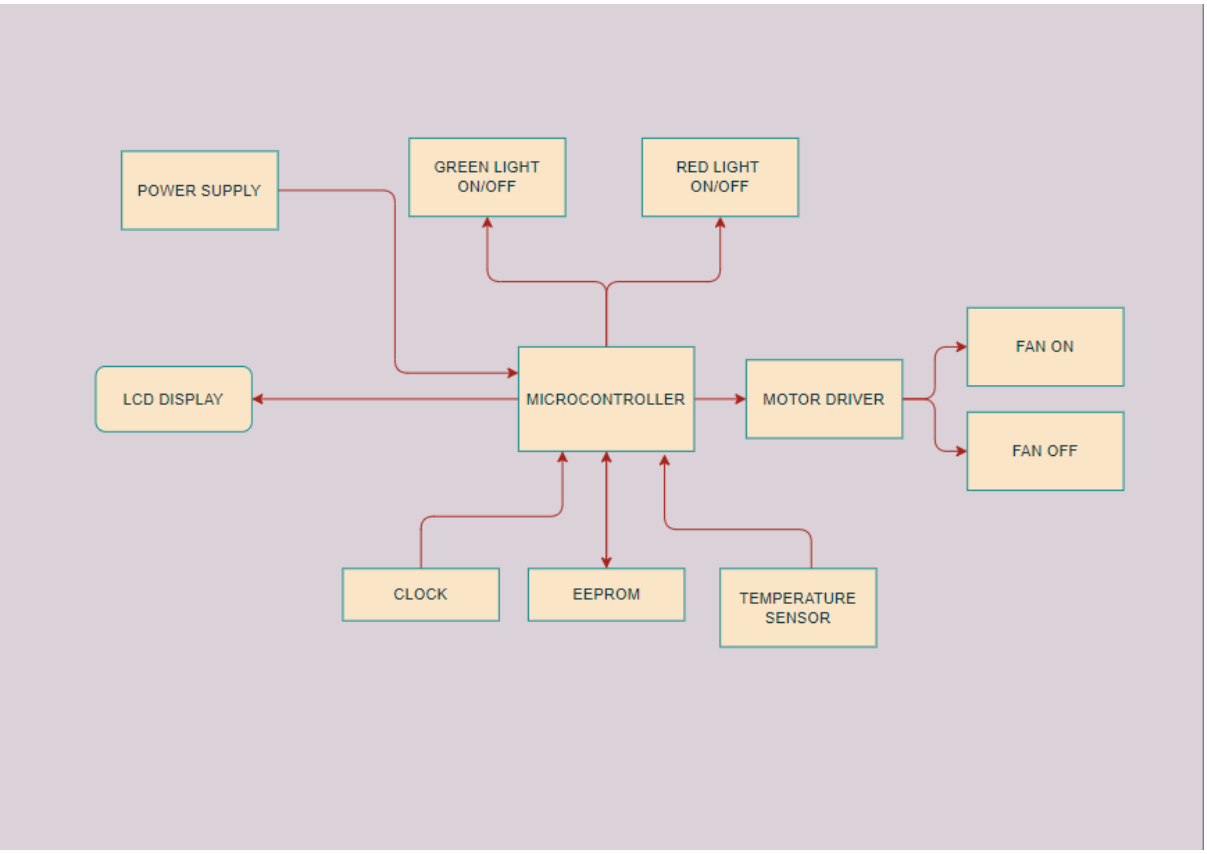
Low level requirements:

ID	Description	HLR ID
LR01	According to the values of the temperature the fan shall be controlled.	HR01
LR02	According to the values of temperature on/off status of fan shall be controlled.	HR01
LR03	LDC shall display the temperature of the room.	HR02
LR04	Fan speed shall be displayed on LCD screen.	HR02

ID	Description	HLR ID
LR05	Device shall pe placed in an appropriate place.	HR03
LR06	Device shall glow LED red when placed wrongly.	HR03
LR07	Temperature sensor shall detect the room temperature.	HR04
LR06	Temperature detected shall be displayed on the LCD screen.	HR04

3. BLOCK DIAGRAM

Block diagram:



Sensor:

Temperature Sensor (Thermistor):

- This Thermistor is a resistor whose resistance is dependent on temperature here this change in resistence produces change in voltage, this voltage is taken as input to micro controller.

Actuators:

LCD Display:

- Displays each and every value we enter in our keypad along with Temperature.

LED's:

- LED displays the on and off status of the device.

Fan:

- Temperature inside room is controlled by fan.

Motor driver:

- Helps in controlling motor of the fan.

MICRO CONTROLLER AND MEMORY

EEPROM

- Here this is actually inside the microcontroller

Clock

- Here we are using internal clock of our micro controller.

MicroController:

- This is the main component which controls all the above mentioned part or thins of our embedded system.This interfaces keypad and LCD and controlls the fan,light and doors depending on the value we pressed on keypad.

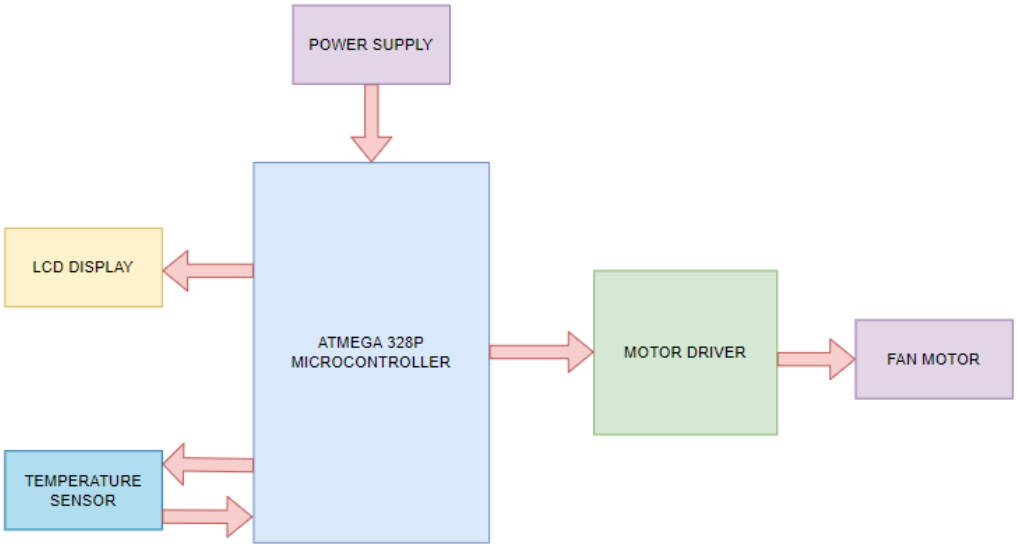
SUBSYSTEM & OTHERS

Motor Driver Unit:

- Helps in driving the motor for our fan by providing required power for them(we use motor driver L293).

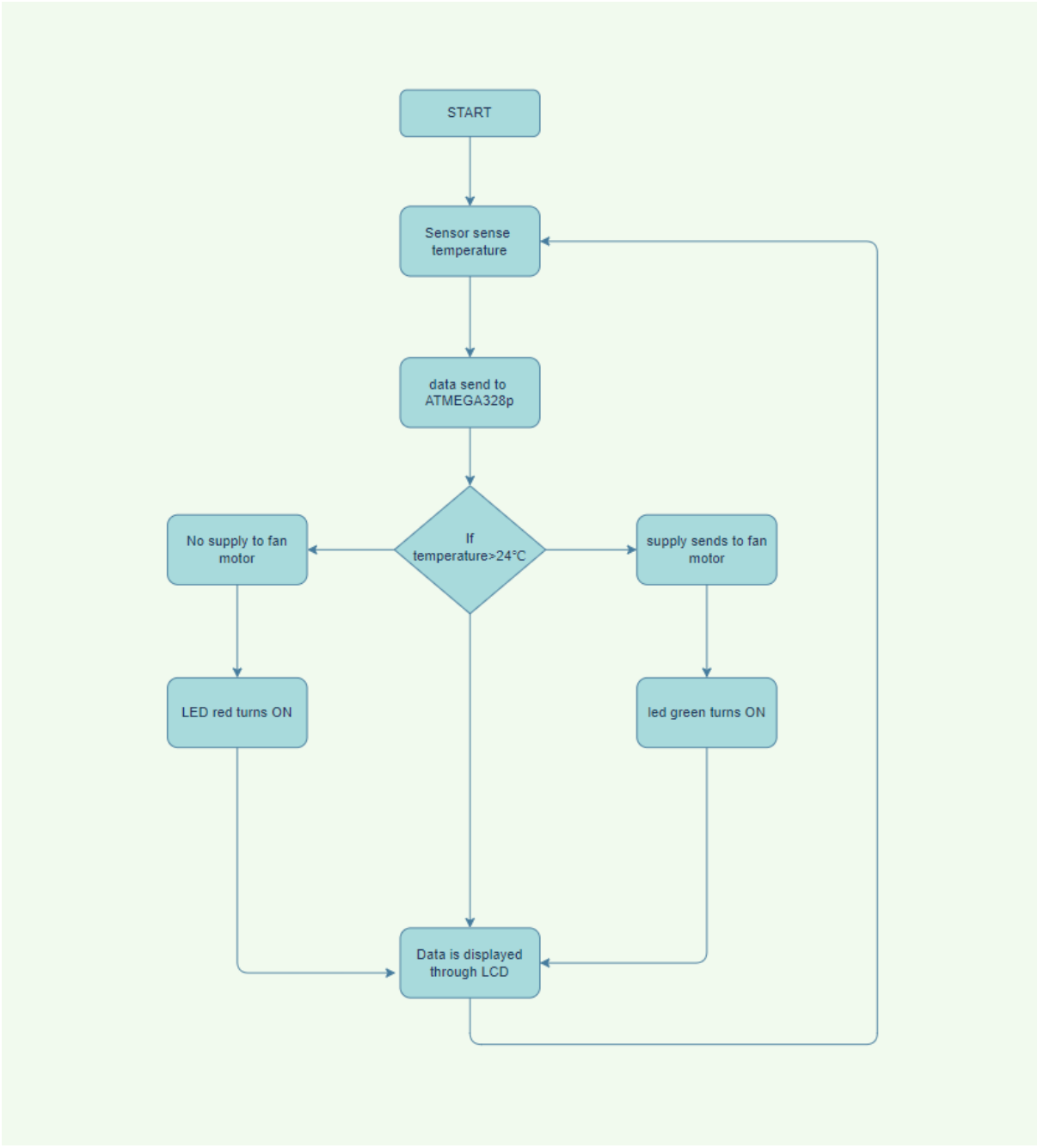
4. ARCHITECTURE

Sturctural diagram:

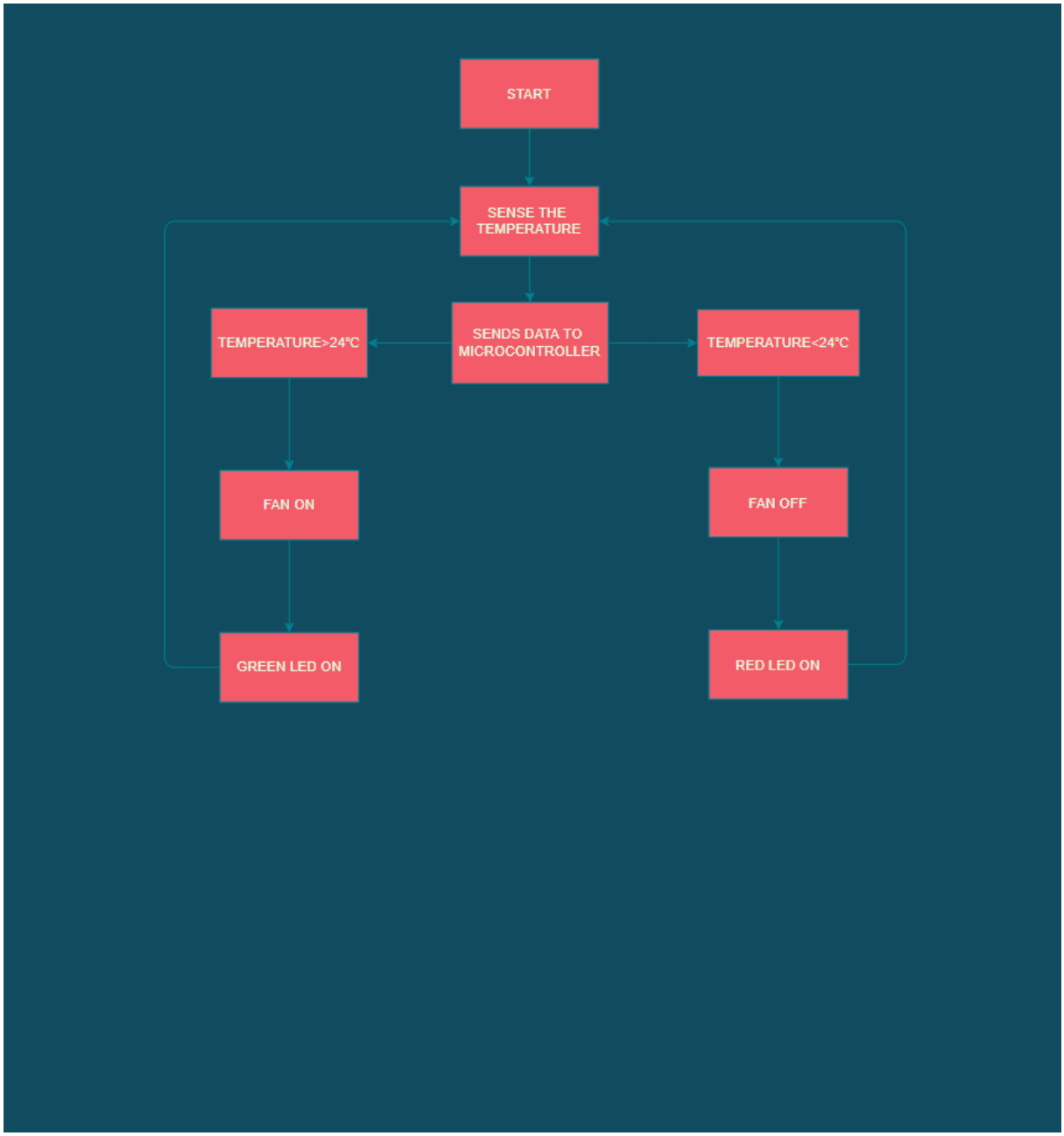


Behavioural diagram:

Flow chart:


START
Sensor sense temperature
data send to ATMEGA328p
If temperature>24°C
No supply to fan motor
supply sends to fan motor
LED red turns ON
led green turns ON
Data is displayed through LCD

UML diagram:



5. APPLICATIONS

- This system can be used in Automation of Houses,Industries,Stadiums etc...
- This system can be used in Fan Control of Houses,Industries,Stadiums etc...
- This system can be used in Automatic Temperature Detector of Houses,Industries,Stadiums etc...
- This system can be used to know number of fans "On" status of Houses,Industries,Stadiums etc...