Report on

‘Alarm Clock with Light and Fan Control’

By

N Pravesh

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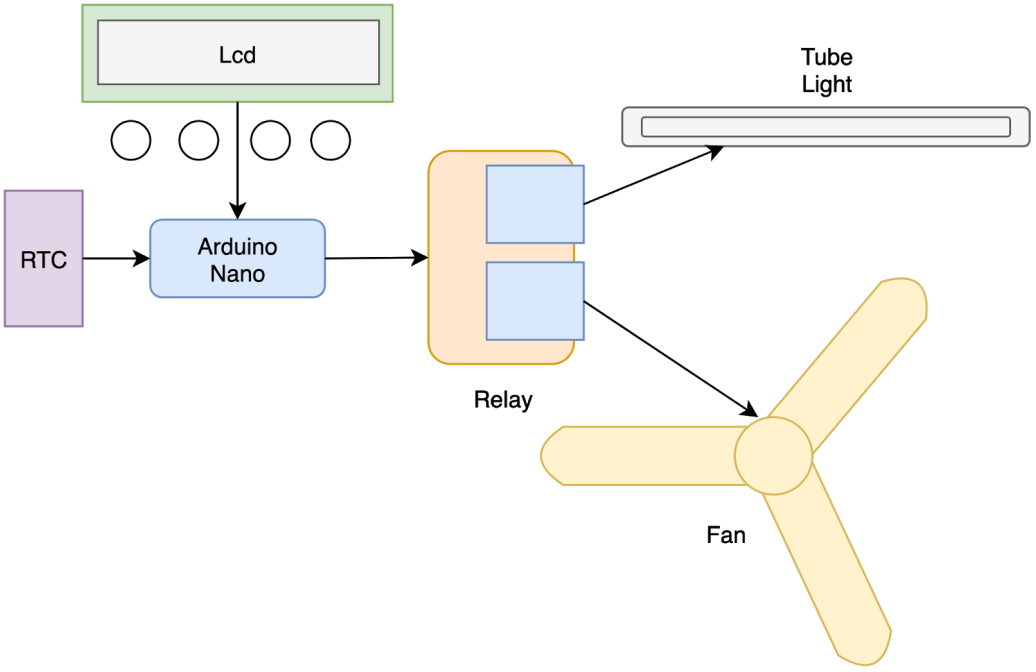
Objective:

To construct an alarm clock device that can wake people up by producing loud music and controls the light and fan.

Description:

Many people think to wake up early but it seems difficult for them. They feel too lazy when the alarm rings. I have built a dream alarm clock for such people. With this alarm clock, we just need to set the time and it does the work of ringing a loud alarm and switching on the light and it switches off the fan. This reduces the comfort level of the person so he wakes up at the desired time.

Block Diagram:



System Requirement Specification

Hardware Requirement:

- LCD Screen
- Arduino Nano
- Button Switches x 4
- RTC DS3231
- Relay Module x 2
- Tubelight and Fan
- Jumper cables

Software Requirement:

- Arduino IDE
    - Library: 1. DS3231.h
    - 2. LiquidCrystal.h

Working Principle:

First, we set the alarm time using the buttons and check it with the LCD screen. The RTC is used to provide the current time. When the current time is equal to the alarm time, the buzzer produces a loud sound, the Arduino controls the relay to turn on light and turn off the fan. Hence anyone can wake up.

Circuit Connections:

- Connection of Arduino to RTC DS3231:
    - A4(SDA) - SDA
    - A5(SCL) - SCL
    - 5v - Vcc

    - Gnd - Gnd
- Connection of Arduino to LCD:
    - 12 - RS
    - 11 - EN
    - 5 - d4
    - 4 - d5
    - 3 - d6
    - 2 - d7
- Connection of Arduino to Button
    - 6 - set
    - 9 - hour
    - 13 - min
    - 10 - save & exit
- Connection of Arduino to Relay Module
    - 7 - IN1
    - 8 - IN2
    - 5v - Vcc
    - Gnd - Gnd
- Connection of Arduino to Buzzer
    - 0 - Signal
    - Gnd - Gnd

Result:

The result of the project Alarm Clock with light and fan control is verified and it satisfied all my requirements without any exceptions.