***Ahsanullah University of Science & Technology***

Department of Computer Science & Engineering



CSE 3216

Microcontroller Based System Design Lab

Project Proposal

On

Digital Clock

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# Introduction:

A digital clock is a type of clock that displays the time digitally instead of time being indicated by the position of rotating hands. Our system will use several seven segment displays and an RTC (Real Time Clock) to show the time in hours, minutes and seconds. We will also display the real-time temperature and humidity.

# Equipment:

1. **Hardware**

* Arduino mega 2560
* DS1307 RTC
* RTC driver (?)
* DHT11 (RHT01) sensor
* LCD Display
* Seven Segment Common Anode Displays
* Jumper wires
* Resistors (…)
* Circuit board

1. **Software**

* Arduino IDE
* Proteus 8 Professional

# Features:

* displays time in hours, minutes, and seconds
* displays real time temperature and humidity
* displays time correctly without setup after being powered on

# Working Principle:

For the digital clock, we used the DS1307 RTC, which is a very low power chip that has the ability to keep time with incredible accuracy. Even after the power has been disconnected from our project, it can run for years on a connected coin cell battery. This small chip can count seconds, minutes, hours and uses the 7 segment displays to show them separately.

We also used a DHT11 sensor, which can measure the temperature from 0-50°C with an accuracy of ±2°C and relative humidity from 20-90% with an accuracy ±5%. An LCd (liquid crystal display) monitor is used to show the output from the DHT11 sensor.

# Circuit Diagram:

# Figure:

# Constraints:

* When using RTC module for the first time we have to set the date and time

# Do’s & Don’ts:

* Show hour, minutes, second separately
* Show current time after power on
* Show humidity
* Show temperature

# Conclusion:

Digital clocks and thermistors are convenient household items present in most homes. This Arduino digital clock with temperature and humidity will display temperature, humidity, and time and the clock will reboot with the real time automatically if it is powered off. This eliminates the hassle of resetting the clock with the current time every time it is powered off.