CMPE453, Section-2
Lab-6

ADJUSTABLE CLOCK DESIGN BY USING TIMERS

In this lab students will design a real clock by programming Timer1 of AVR Microcontroller.

Hardware Requirements

1) Arduino Uno Board
2) Arduino Base Shield
3) Breadboard
4) Push Button
5) LCD Display
6) 2 Leds with Resistors
7) Connecting wires

Software Setup

In the software you are required to do the following.

1. It should continue displaying the current time on LCD display in the form of HH:MM:SS.
2. You should also use a push button in order to change the hour and minute by sending the new values by using UART communication.
3. AVR should listen to UART and get the hour and minute from the user input.
4. If there is 1 press on the button in 2 seconds, the value sent by the user should set the hour part on the clock and **LED1** should be on for 1 second. If there is 2 presses on the button in 2 seconds, the value sent by the user should set the minute part on the clock and **LED2** should be on for 1 second.
5. Hour values outside of [0,23] and minute values outside of [0,59] should be accepted as invalid, and the user should be prompted to enter new values.