

**Forman Christian College (A Chartered University)**  
**Embedded Systems (CSCS306)**  
**Assignment 1**  
**2 Digit Stop Watch Using Arduino**

Group of two persons is allowed in this assignment. You can discuss the working of assignment with your class fellows. Sharing any part of your assignment is strictly prohibited. Any such attempt will result in zero marks in this assignment.

Date of Submission: Wednesday Nov 02, 2022 between 11:00 and 11:20 am in class. Any submission after the specified date and time will be considered late. A penalty of 20% marks deduction per day will be applicable on late submission.

**Grading Criteria**

Working hardware: 50%

Report: 30%

Neat wiring: 20% (Loops of jumper wires that clutter the display will not earn you this 20%)

**Assignment Task**

In this assignment you need to design and make a stop watch. This stop watch should have two multiplexed 7-segment displays. The 7-segment module should be capable of counting from 0 to 99 (up count as well as down count).

You also need to interface three push to ON switches. First switch should adjust units digit while second switch should adjust the tens digit. This means if we want to set a value of 25 on the module, we will use units switch to place 5 and tens switch to place 2 on the module.

Once time is adjusted, user should press third switch and this should start the stop watch. The stop watch decrements its numeric value with each second.

When time's up, both digits should blink couple of times and then reset to a predefined state, say all zeros.

You should submit the working hardware on the given date and time, along with a neat and properly formatted report. Make sure you use Times New Roman in your document with appropriate font size for text, heading and sub headings. Code must have Courier font style.

Your report should carry following sections:

1. A title page displaying
  - FCC logo
  - Assignment number
  - Assignment title
  - Group members names and roll numbers.
2. An Introduction page that should have
  - Brief introduction about the assignment.
  - Components used
3. Circuit diagram. Hand drawn diagram will not get full marks. Try to use a software like Fritzing.
4. Image of the working hardware
5. Code
  - Proper indentation and comments are required.
6. Assignment handout
7. References