Digital Clock with Alarm Using Seven Segment Display in Assembly Language

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Basic Structure of Program

Execution of Program will start from "main". It contains functions called subroutine

- Main:
  - Subroutine:
    - CLOCK DISPLAY:
    - BCD:
    - SEGMENT DISPLAY:
    - CLOCK LOOP:

Instruction Used In the Program

As there are no inbuilt function for looping, condtional branching; these following instructions has been used for building logic of the program :

- LDI, OUT, DDRx
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- INC, DEC
- CALL,RET, JMP
- CPI, BRNE
- MOV, LSL
- AND,OR, EOR

Circuit

- 6 seven segment display has been multiplexed
- Each Segments common pin are connected to Analog pin i.e. PORTC of Arduino

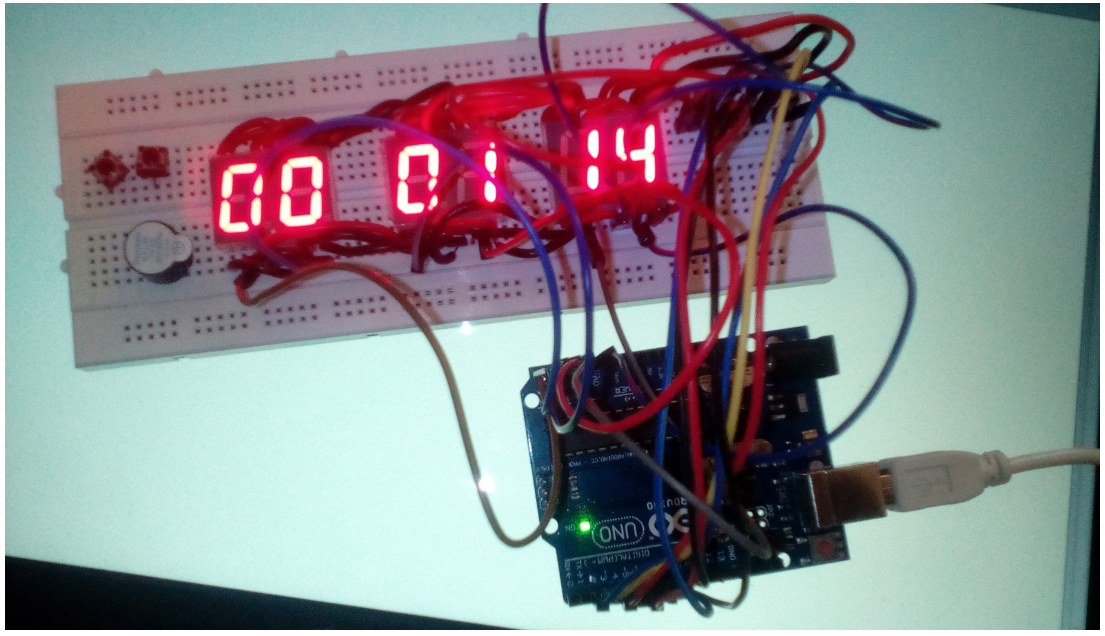

Figure 1: Digital Clock with Alarm

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- In order to tune the clock to 1 second, I have to count the total number of cycles taken by the each instructions

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- Implementation of IF-ELSE - ——novelty
  CPI condition
  BRNE else block
- Implementation of FOR Loop -
  LDI count,99
  loop:
  ; Do something
  DEC count
  BRNE loop

THANK YOU