ASSUMPTION UNIVERSITY

Vincent Mary School of Engineering

Final Exam 3/2020 (SET 1)

Course Number : EE3704 Embedded System

Date : 1 June 2021

Time : 90 Minutes (+15 Minutes Upload time)

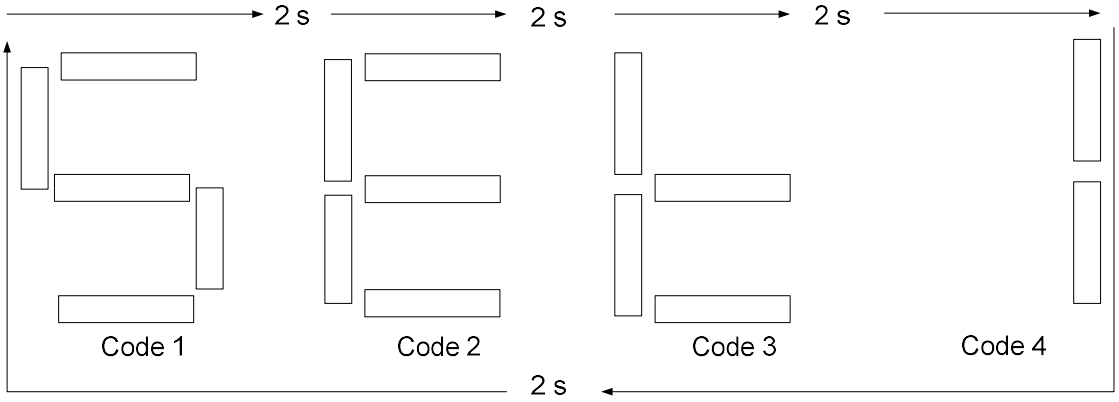
Name…… Student ID…….……...

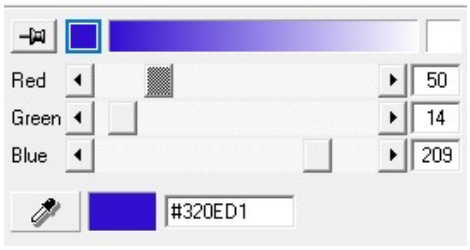
Instructions

- There is only 1 problem to this exam. Total scores are 150 points accounted for 50% toward your final grade.
- **All notes, personal notebook, tablet is allowed. Internet is to be used for search engine, sending information is strictly not allowed and taken as cheating**.
- AL: Active low, AH: Active high.
- Pins M, N, O, P, W, X, Y, Z are selectable.
- Total of 2 pages including this cover page.
- 1 Assistant equivalent to 50 points reduction.
- Stay clam.

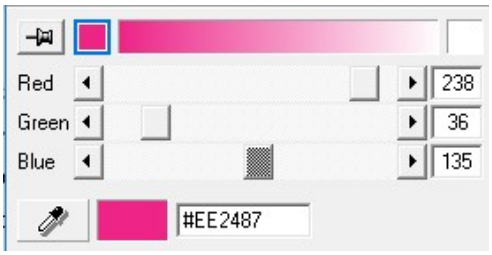
1. **(150 points)** You are the **best** programmer of **Arduino-System** of your company. You task are to programming and perform the following task:

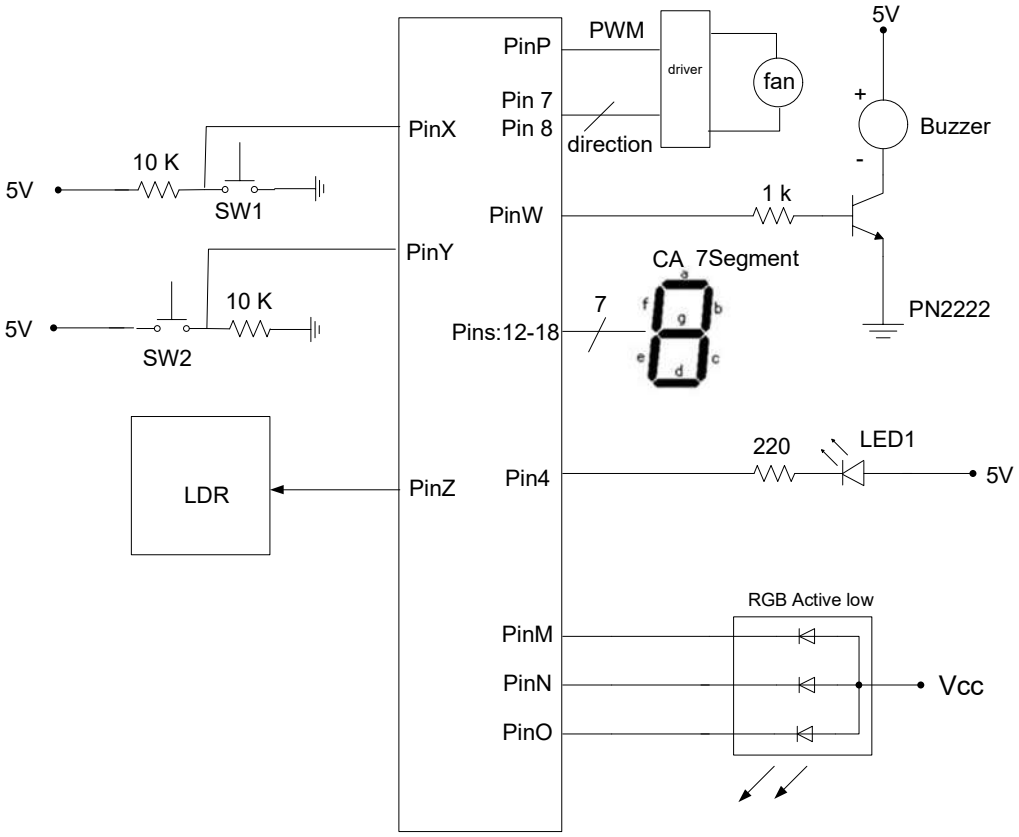
   - With normal condition (SW1 and SW2 did not pressed), CA 7 Segments show the codes as follow in the loop. Other functions should not work (LED, RGB, Fan and buzzer must be off).



   - When SW1 is pressed and released (not interrupt), Buzzer will play Do Re Me Fah Son Ra Te (with any frequency) sound for 1 loop. On LED1 during Buzzer play these sound notes. Other functions should not works (7Segment, Fan and RGB must be off).
   - When SW2 is pressed and released (not interrupt), operate the functions below for 1 loop. Other functions show not works (7segment, LED and buzzer must be off).
     - If room is normal condition, Fan operate CW 70% for 5s and stop. RGB shows
     - 

     - If room is dark condition, Fan operate CCW 45% for 5s and stop. RGB shows




PinP
PWM
driver
fan
5V
+
Buzzer
-
Pin 7
Pin 8
direction
PinX
10 K
5V
SW1
PinW
1 k
PinY
CA 7Segment
10 K
5V
SW2
7
Pins:12-18
PN2222
LDR
PinZ
Pin4
220
LED1
5V
RGB Active low
PinM
PinN
PinO
Vcc