2020 - 2021
Spring Semester

CME 3208
Principles of Embedded Systems

Lab 3
Running DC Motor

DUE DATE: 23:55 – 04.05.2021

In this lab work, you will run DC motor and control its direction and speed by Arduino. You are required to create a circuit with an Arduino board, a DC motor, L293D Motor Driver IC, potentiometer and push button using Arduino Software (IDE).
When you correctly assembled the circuit, you will need to write a source code to control the speed of the DC motor by the potentiometer and motor's direction by the button.

Experiment

In this experiment, firstly DC motor will rotate clockwise for 3 seconds and counterclockwise for 3 seconds. But when push-button is pressed, it should rotate reverse direction regardless of time duration. Also potentiometer will be used to speed up or slow down DC motor.

Upload Requirements

You are free to use functions as you wish. Please take care to use only English language in your code including variables, functions and comments. In addition, make sure your code is understandable, readable and well structured.

You are also required to make a video that will explain and show the circuit and its operation. The video you are going to make should be at most 5 minutes. Videos uploaded longer than this time limit will have their grade reduced. In addition, please make sure the video quality is good and your circuit and computer screen (when it is required) is clearly visible. You can use Turkish or English in this video, you are free to use either of them.

You are required to upload two different files. One is the source code you have written in Arduino IDE and the video you have made to show and run your circuit. The extension of your source code file should be "ino" because that is the extension Arduino IDE uses for C source code files. The extension of your video file could be any video extension that is used (e.g. mp4, mkv, etc.), however, make sure you can play this file on your computer and it can be viewed correctly.

The files you are required to upload are given below with explanations:

(STUDENT_NUMBER)_(STUDENT_NAME)_LAB3_Code.ino

(Source code you have written for the experiment)

Example = 2043901815_Augusta_Ada_LAB3_Code.ino

(STUDENT_NUMBER)_(STUDENT_NAME)_LAB3_Video.mp4

(Video recording of you explaining your project and showing its execution)

Example = 2043901815_Augusta_Ada_LAB3_Video.mp4

Late or no submissions will be graded zero. You can see the basic grading table of this assignment below.

CRITERIA	GRADE
Correct naming of upload files	10
Correct circuit construction	30
Working and good source code (Using English, high readability, Sufficient Comments, etc.)	30
Good Explanation Video (High resolution, showing circuit and its operation, brief and shorter than 5 minutes)	30
TOTAL GRADE	100
CHEATING OR ANY OTHER FORM OF PLAGIARISM	$-\infty$

If you have any questions or problems regarding this lab paper, you can ask about it in lab session at Tuesday, 27.04.2021. If you wish, you can also ask it in class forums or assignment page comments.

GOOD LUCK TO YOU ALL!