ROBOT LEARNING (ENMP-690)
HOMEWORK ASSIGNMENT – 2

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1) Program a simple robot vehicle in a simulated environment (robot simulation tools and libraries may be used). Your simulated robot should exhibit at least one sensor input (e.g., forward-looking range sensor that returns the distance to the nearest obstacle) and two control outputs (e.g., left and right wheels, or speed and direction of vehicle motion). Show that you can drive your robot around through mouse or keyboard inputs.

Ans: The GitHub link contains HW3690-prob1.m file which is the MATLAB file for control of robot using arrow keys to run along with V-Rep. The getkeywait.m file was used to get the input data required to run the keycode. The V-Rep scene must be run first after which the MATLAB code is simultaneously run to get that the mobile robot performs the movements according to arrow keys in the form of 'W A S D". This makes the Robots move according to the key pressed by the user. Also, the code outputs the direction and angular velocities of the bot. The other MATLAB files required for the connection of V-rep to the MATLAB are also include in the repository.

2. Add a programmed behaviour to your robot, such as following (or avoiding) a light, or wandering, while avoiding collisions with obstacles.

Ans: The HW690-prob2.m file is MATLAB file for the obstacle avoidance. The obstacles are detected using the ultrasonic sensors which are present on the front of the robot. The program also returns the distance of the obstacle from each of the robot used. The other MATLA files required for the connection of V-rep to the MATLAB are also include in the repository.