

Assignment

1. Discuss the usage of servo motors in your mobile robot to fulfill the given task.
 - a. Do the necessary calculations for the required torques to move any objects.
 - b. Modify the initial prototype designed in the assignment 1 to include servo motors at appropriate locations.
 - c. Select the required servo motors from commercially available servos.
2. Propose a pseudocode for the line following algorithm using PID control. Explain what each line does.
3. Explain the strategy you would use to overcome the passage of synchronized gates in the final task. Use diagrams, if necessary.
4. Prepare a table for each and every motor type you encountered during the Robot Motion lectures. The table should include the following for comparison.
 - a. Torque
 - b. Speed
 - c. Phases
 - d. Commutation
 - e. Rotor
 - f. Stator
 - g. Terminals
 - h. Magnetic field generation
 - i. Angular resolution
 - j. Motor complexity
 - k. Control mechanism
 - l. Control complexity
 - m. Use of H bridges
 - n. Driving modes
 - o. Cost
 - p. Advantages
 - q. Disadvantages
 - r. Commercially available product

Note

- Some terms may not have meaning for certain types of motors. Use “not applicable or (N/A)” for those cells.
- You can use terms such as “high, low, moderate etc.” for comparison. Or else you can mention few words.