DPS941 Lab Challenge 2 Due Oct 31, 2019

Multi-Sensor Autonomous Control

In this challenge lab you will design and implement software to autonomously move the VEX EDR robot through a set of pre-defined challenges.

# LEARNING OUTCOMES

Upon successful completion of this challenge lab, you will have demonstrated the ability to:

* Demonstrate an understanding of robot sensors
* Implement the autonomous sensor control (detection and reaction)
* Use multiple sensor devices simultaneously in a single autonomous application

# SPECIFICATIONS

Your task is to write an autonomous software application using RobotC that will successfully perform the following objectives. (Assumptions: Claw is closed initially, arm is placed so that the claw is able to pick up an object in front of the robot.)

* Drive forward by 38 cm at a location that an object is supposed to be located.
* Check if an object is there. If not, stop the robot.
* Otherwise, do the following:
  + Stop the robot for 2 seconds.
  + Close the claw slightly to grip the object.
  + Wait for 2 seconds.
  + Turn the robot to the left by 45 degrees.
  + Wait for 2 seconds and then move forward by 2 seconds.
  + Stop the robot and drop the object by opening the claw.
  + Stop for three seconds.
  + Move backward by two seconds and then stop the robot.

Your software design should take into account the concepts of sensing taught in class and should use the following sensors:

* Sonar
* Limit Switch

You are not allowed to interact and/or touch the robot once the program has started. Doing so will result in loss of half the marks. You robot must be programmed to complete all tasks in one operation. The lab will be considered completed once the robot has completed the above list of tasks.