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**DESCRIPTION OF LAB ACTIVITY**

Make the ActivityBot travel through maze using whiskers

**ANALYSIS OF WHAT YOU NEEDED TO DO/LEARN**

1. Learn how to …
   1. attach servos whiskers to Arduino/activitybot
   2. make Arduino/Activitybot move around autonomously while avoiding obstacles using whiskers
2. Create a…
   1. function using functions to make robot move using whiskers

**ALGORITHM FOR CODING**

1. First create a …
   1. stop functions that makes the robot stop
   2. straight function that makes the robot travel straight
   3. right turn function to make the robot turn right
   4. left turn function to make the robot turn left
   5. backward function that makes the robot travel backward
   6. whisker function that uses the straight/backward, stop, and right/left turn functions to create a square pattern
2. If the battery is ok, make a piezo race start sound and start the **whisker function**…
   1. Make the robot …
      1. travel straight for x distance (using straight function)
      2. if whiskers make contact with an object…
         1. if only the left whisker makes contact with an object
            1. travel backward for 1 second (using backward function)
            2. turn robot right ~ 30 degrees (using right turn function)
         2. if only the right whisker makes contact with an object

**Whisker Functions**

* + - * 1. travel backward for 1 second (using backward function)
        2. turn robot left ~ 30 degrees (using left turn function)
      1. if both whiskers make contact with an object
         1. travel backward for 1 second (using backward function)
         2. turn robot right ~ 60 degrees (using right turn function)
      2. if the robot is stuck in a corner
         1. travel backward for 1 second (using backward function)
         2. turn robot right ~ 60 degrees (using right turn function)

1. If the battery is starting to get low, alert user with special piezo tone, then start **whisker function (**same as above**)**

**ACTUAL CODE – ATTACH**

**KEY CONCEPTS LEARNED/DISCOVERED (MATH/ELECTRONICS/PROGRAMMING/ETC)**

1. Whisker corner, obstacle avoidance logic
2. Circuitry ( attaching whiskers)

**REFLECTION/QUESTIONS/COMMENTS**

I found the assignment to be very fun and I enjoy learning how to build the circuits. I enjoyed working with the whiskers. The whiskers are not reliable thought with obstacles that are not straight or above/below the whiskers contact range. The robot gets stuck in any case where whiskers cannot make contact with obstacles.

However, I would like some more instruction on how to begin the assignments than what was given. A short introduction or in class lesson would be helpful, maybe go over key points from assignment.

**ASSESSMENT (TO BE FILLED OUT BY INSTRUCTOR)**