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**DESCRIPTION OF LAB ACTIVITY**

Make the ActivityBot traveling in geometric patterns (Square)

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

1. Learn how to …
   1. bias servos (set them to stop movement at 1500)
   2. create/use functions
   3. use piezo horn to indicate battery levels
   4. use delays to make turns
   5. attach servos and piezo horn to Arduino/activitybot
2. Create a…
   1. chart plotting servo values and what direction/how far the wheels traveled
   2. function using functions to make robot move in a square pattern.

**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. turn function to make the robot turn a direction (90 deg turn)
   4. square function that uses the straight, stop, and turn functions to create a square pattern
2. If the battery is ok, make a piezo race start sound and start the **square function**…
   1. Make the robot …
      1. travel straight for x distance (using straight function)
      2. turn 90 degrees for x distance (using turn function)
      3. travel straight for x distance (using straight function)

Square Function

* + 1. turn 90 degrees for x distance (using turn function)
    2. travel straight for x distance (using straight function)
    3. turn 90 degrees for x distance (using turn function)
    4. travel straight for x distance (using straight function)

(x is the delay value, the delay value determines turn degree and distance straight)

* + 1. stop to set servos to 1500 to stop robot (using stop function)

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

**ACTUAL CODE – ATTACH**

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

1. Biasing servos
2. Calculating RPMs of servo motors
3. Circuitry ( attaching servos and piezo horn)

**REFLECTION/QUESTIONS/COMMENTS**

I found the assignment to be very fun and I enjoy learning how to build the circuits. 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)**