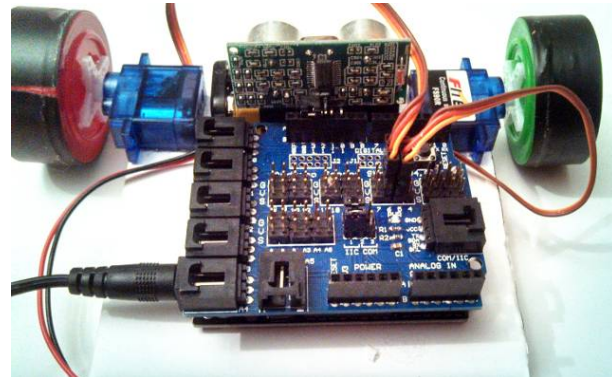
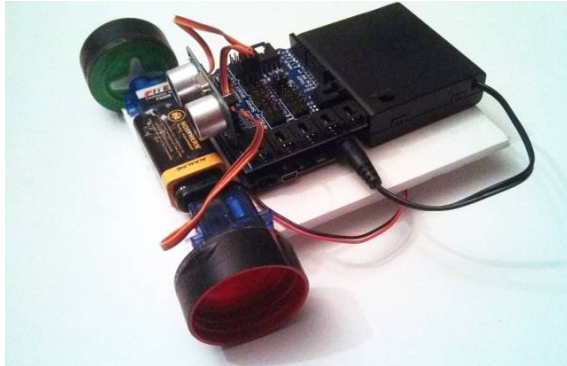


Let's Code Blacksburg! Arduino Sensors and Robotics Workshop

v2015-10-15a_tweeks

Code: https://github.com/LetsCodeBlacksburg/LCBB_arduino-collision-bot



1. Physically build your collision avoidance bot:

- one 6x4 piece of cardboard or foam board
- one arduino microcontroller, mounted as shown
- one ultrasonic sensor (“eyes”), DO NOT PLUG IN until step #2
- two continuous rotating servos, mounted as shown
- one battery holder
 - If AA batts w/on/off switch (black box shown behind arduino), mount UNDER the arduino
 - If 9V batt, mount in front or behind the arduino
- two milk jug caps (for wheels) hot glued as shown
- one drink cap (as “rear dragger” (not shown))

TA SIGN-OFF: _____

WARNING: DO NOT POWER UP or plug in USB until TA has inspected, and sensor configuration code in step#2 has been uploaded to the arduino.

NOTE: You may need electrical tape around your wheels if you're running your bot on a shiny or smooth/slippery surface (as shown above).

2. Upload sensor code “ping_US-100_sensor.ino” to Arduino & Test

-Copy code from github account: https://github.com/LetsCodeBlacksburg/LCBB_arduino-collision-bot

-Verify you can get Arduino program “blink” working

TA SIGN-OFF: _____

-Paste ping_US-100_sensor.ino into arduino (but DO NOT CONNECT ping sensor yet!)

-Compile  and get TA Sign-off (not hooked up yet!)

TA SIGN-OFF: _____

-After sign-off, connect the ping sensor as shown using pins 10, 11, 12, 13 and GND on the sensor shield

-Test sensor, using the serial console  to see the sensor readings **TA SIGN-OFF:** _____

-After TA sign-off, save your ping sensor code to be used later.

3. **Connect the two servos to three pin headers 5&6 on the sensor shield or directly on some arduinos**
-Connect the servos (while arduino is unplugged/powerd off)
-Copy the “two-servos-test.ino” servo test code from github URL (above)
-Calibrate your stopL, stopR, forwardL, forwardR, etc values until they all perform as expected for your servos and robot configuration so that you can demonstrate working forward(), stopall(), turnL() and turnR() functions, and get TA sign-off:

TA SIGN-OFF: _____

BOT CHALLENGE: Try to program your bot to move around to form a 2 foot x 2 foot square

TA SIGN-OFF: _____

4. **Make Your Bot Smart - Combine Servo Code & Ping Sensor Code**

-Combine the ping sensor and servo code to make your bot stop, scan for obstacles, and navigate the room without hitting anything. If you're less experienced, you can experiment with the existing LCBB_collision-bot_complete.ino code, or use what you have in previous steps to design your own!

TA SIGN-OFF: _____