ELECTRONICS INTRODUCTION

Designing a Next-Generation Surgical Robot Activity

Electronics Introduction

- Connect switch to receiver. Red connector goes in the last slot of receiver marked “B.”
  - Wires: red on the left; black on the right
- Connect servos to receivers. At this point, it does not matter which channel you plug each servo into.
  - Wires: white on the left; black on the right!!!!
- Make sure switch is turned off.

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- Connect switch to battery pack. Line up the black wire on the battery pack with the black wire on the switch.
- Always turn ON transmitters first and then turn on switch.
- Tare (zero) continuous rotation servos if they are rotating on their own (see next slide for instructions).
- Always turn switch OFF first and then transmitters.
- The switch should never be on when the transmitter is off!!!!!
  ➔You will break the servos if you do this!

To Tare the Servos

- If the servo is rotating **fast**, then follow the procedure below for coarse adjustment:
  - Locate the hole with the internal screw .
    - It is next to where the wires come out of the servo.
  - Use a small Phillips head screwdriver to turn this screw until the servo stops moving or is moving very slowly.
  - If the servo spins faster when turning the screw, then turn it in the opposite direction until it stops or is moving very slowly.
- If the servo is rotating **slowly**, then follow the procedure below for fine adjustment:
  - Locate the servo adjustment switch on the transmitter that corresponds to the channel that your servo is plugged into (there is one for each channel).
  - Move this switch until the servo stops moving.

Electronics Tips

- Always make sure all switches are turned off when not in use; otherwise it drains the batteries.
- Receivers are very delicate so please handle with care
- Never use glue to attach any of the electronics (including the servos) to your device.
- Ensure that servos can be zeroed easily when attached to your device (internal screw should be exposed).
- Make sure batteries are easily accessible in case you need to check their voltage or replace them.
- Never glue anything on top of the accessory screw on the servos (so that devices can be completely disassembled at project end).