Mobile HRI Lab5: Make the Robot Move
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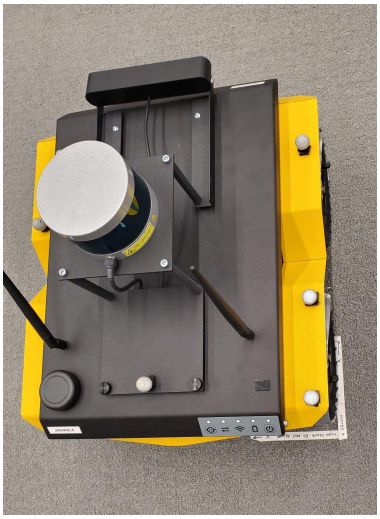
Deliverables

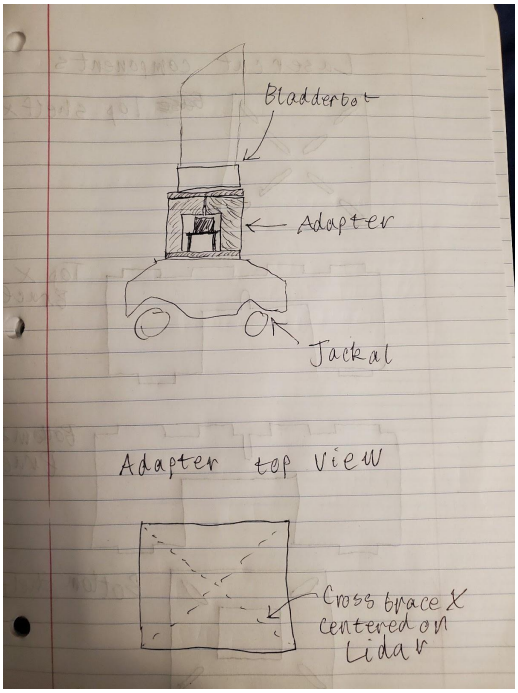
1. Videos of you controlling the wheels with your joystick controller properly.
2. Three ideas on how to use controllers' rumble feature for Wizard of Oz control.
3. (optional) Documentation of the robot proto-chassis

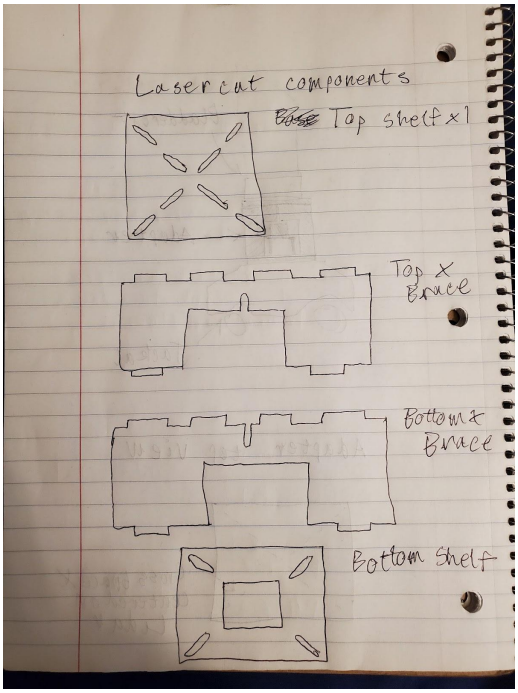
For my final project, I will be using the Jackal robot with lidar attachment from ClearPath robotics (link)

1. Video of the robot moving in response to joystick
    a. See RobotMoves.mp4
2. Ideas for rumble controller:
    a. Safety alert: When the lidar senses a point within 0.5m of the robot, the controller can strongly vibrate to help the user drop the deadman switch
    b. Lost localization: When the navigation stack makes a large jump, it is unlikely to be accurate. We can inform the user that localization is lost by vibrating the controller.
    c. Lost user: When the robot loses track of the human, the controller can softly vibrate until the user is found again.
3. Robot proto-chassis
    a. We want to mount an inflatable projector screen on top of the Jackal base to safely display status and direction to the user.
    b. Kirstin Peterson's lab has a mobile robot, Martha, with an inflatable projector screen (with built in 'touch' sensing).
    c.  
    d. Above: Jackal and Martha
    e. We will attach Martha to the Jackal using a lasercut box with an X shaped internal support. This minimizes the cross-section of the support with respect to

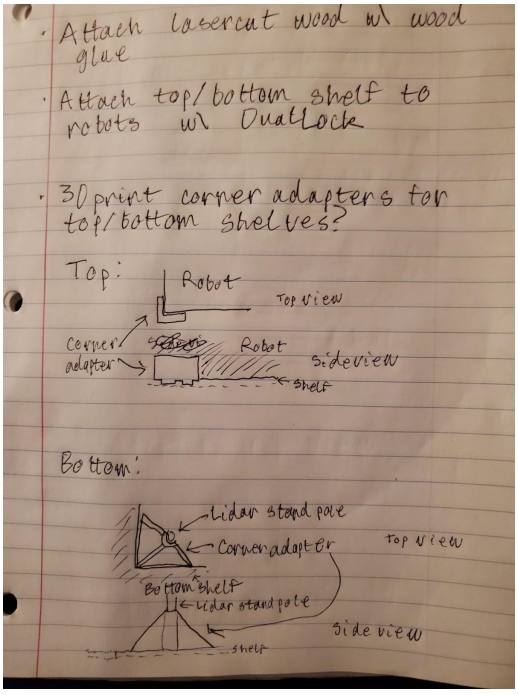
the Jackal's lidar. Sketches below. We will prototype out of cardboard, then move to plywood.

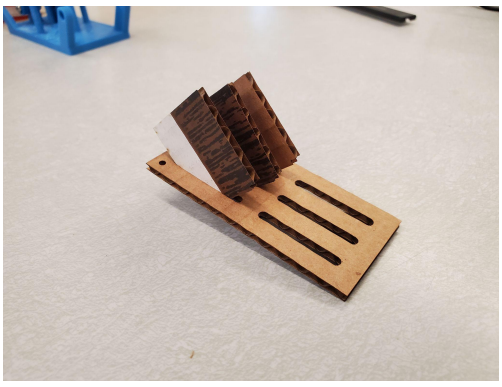
f.





g.





h. Above: Sketches of the lasercut Martha mount and prototype lasercut interlocking tabs.