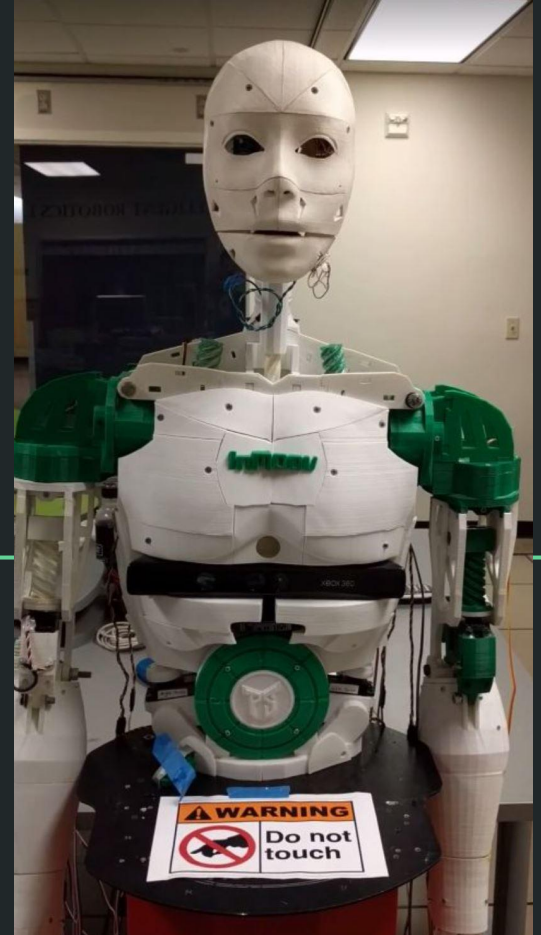


Bohr Inmoov Team

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Project 1 Tasks

- Locate robot ✓
- Resurrect the robot to its “original” functionality (Fall 2017/Winter 2018) ✓
- Mechanical Assessment ✓
- Assess material, strength, servo control, power solutions ✓
- Possibly replace components, improve the “links”, etc
- Pioneer mobile base and Torso power solution
 - User power supply from base to power upper body servos
 - Ability to communicate between InMoov Raspberry Pi and Pioneer NUC via serial
- Create “natural” gestures for both Inmoov arms and torso
- Basic cable management

Project 1 Progress

- Replaced failed Pioneer batteries & developed power distribution circuitry
 - 12v batteries to 5v PWM hat supply using linear voltage regulator chips
- Restructuring/upgrades in InMoov driver code
- Copied interpolation/threading solution from last term's robot
 - Not immensely useful because the servos are already quite slow, but it could come in handy
- Ordered & assembled new servo hats
- Better test system for calibrating servos (not ideal for posing)
- Re-assess/re-calibrate joints & servos (in progress)
 - No dead servos (yet) but several mechanical failures like head & right mid finger
 - Some worm gears insufficiently anchored to the servos and keep popping off
- Tested built-in self test movement(s) for Pioneer mobile base

Project 1 Progress (the bad news so far)

- Pioneer control board (NUC/Joule?) is busted, haven't been able to control the Pioneer bot at all yet
- Unable to find/learn about code that the Pioneer uses
- No progress on simple ROS communications yet
- No progress on any “intelligent” behavior yet

Conclusion:

We need(ed) to focus on the “robotics” part before the “intelligent robotics” part

Remaining Project 1 Tasks

- Create program that allows full-body posing, to help with animation building
- Test power distribution circuitry, to both Pioneer and InMoov
- Get a NUC/Joule to control the Pioneer and find its code base
- Use ROS to integrate base station (laptop), Raspberry Pi, and NUC/Joule
- Fix mechanical issues (worm gears, hand string tension, 3D print replacement parts, find better screws, etc)

Project 2 End Goals

- Driveable Pioneer robot
 - Maybe SLAM algorithm?
- ROS communication between Pioneer, InMoov, eyes, and base station
- Grasping simple objects at all with InMoov arms/hands
 - Materials/mechanical problem
 - Eventually, using vision to aid with grasping
- Better humanlike movement, gestures & poses
 - Eventually, using vision to recognize people/faces and aid with gestures/poses