

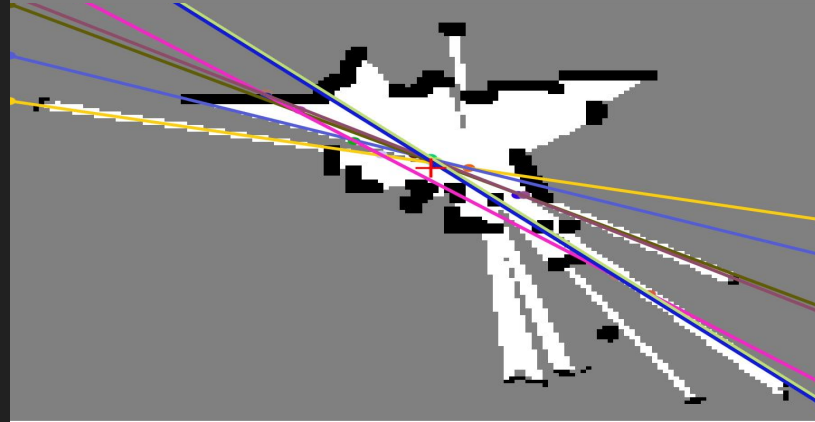
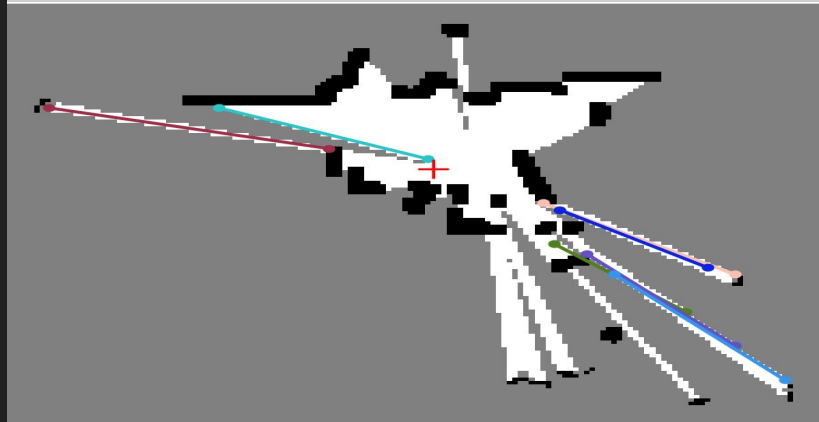
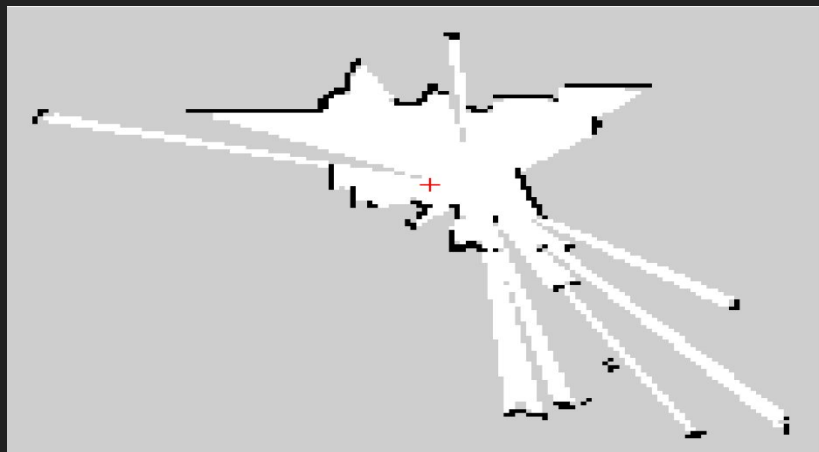
Final Update (PupMappers) SLAM

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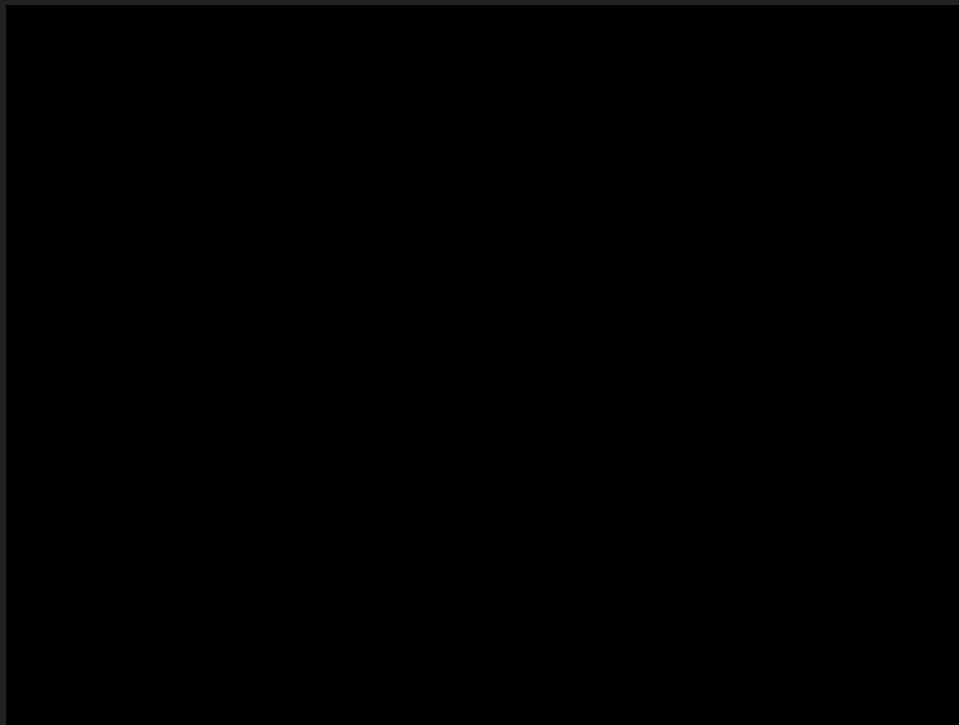
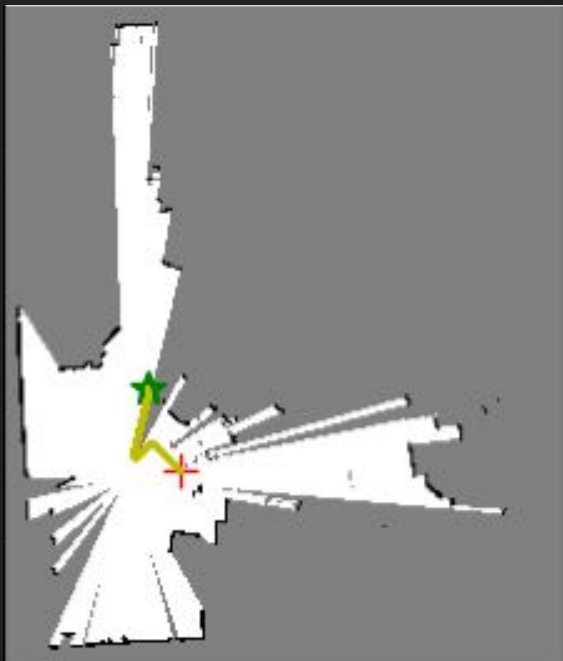
Central Goal

- Map a room by incorporating SLAM.
 - Simultaneous Localization and Mapping is a widely used and respected technique in robotics.
 - SLAM allows for a high degree of flexibility in sensor inputs.
 - ROS Twist commands allow for more accurate movement of the pupper.
 - Orienting the robot to obstacles and boundaries in the room would allow it to better navigate and achieve other goals.

Demo - Localization - Where am I?

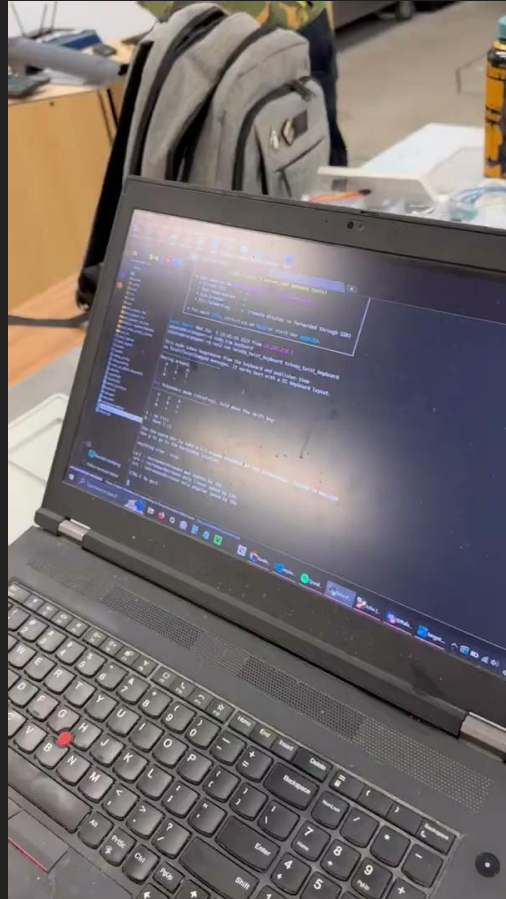


Demo - Mapping - Where should I go?






Demo 2 Bloopers


In case you're wondering why John is holding the cable extension for the Mini Pupper.



Mid Project Success Criteria

- Simulation Working 
- Lidar Integrated 
- RViz Actual Room SLAM images produced 

End Project Success Criteria

- Actively Explored a Real Room 
- Produced Reasonably Full and Accurate Map

Reflection

- Sometimes the out of the box answer is the answer
- Mangdang's ROS launch setup is not fully optimized
- The mini-pupper does not compute fast
 - Would be more ideal to handoff computation to a computer
 - May need to shrink the exploration goal to a hallway (battery life)
 - Will be a little faster without debugging graphs
- SLAM maps of real world rooms
 - LIDAR Map combining based on landmarks may suck
- Movement and Mapping have been done independently
 - Can set movement points on puppers field of view (manually or automatically)

Individual Takeaways

Daniel

- Dealing with limitations of sensors and hardware
- Collaborative debugging and problem solving

Hendy

- Creating documentation for the mini puppers for teams portfolio.
- Conducting additional research into ROS to gain better understanding

John

- ROS2 is very powerful
- State Space Changing is always a valuable tool
- More sensors close the loop better

Tim

- Scale of resources
- Further research into ROS to understand its capabilities