EXPLORING AND DEVELOPING TOOLS FOR AUTONOMOUS SURFACE VEHICLES

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AUTONOMOUS ROBOTS

- We use robots to make our lives easier
- We use them in our everyday lives

RESEARCH ROBOTICS

We could instruct autonomous vehicles to:

- Search and rescues missions
- Monitor and survey uncharted regions
- Track algae blooms in the ocean

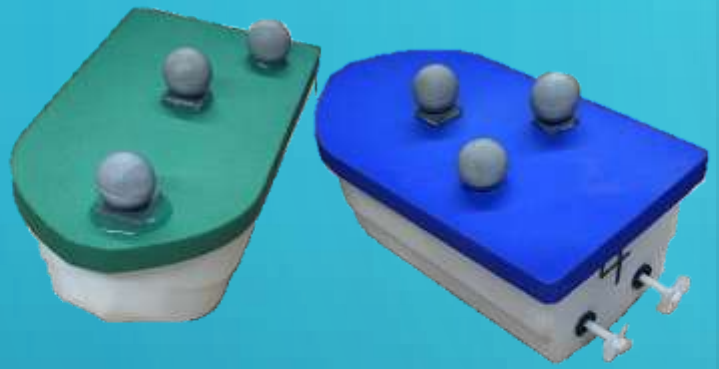
PROBLEM STATEMENT

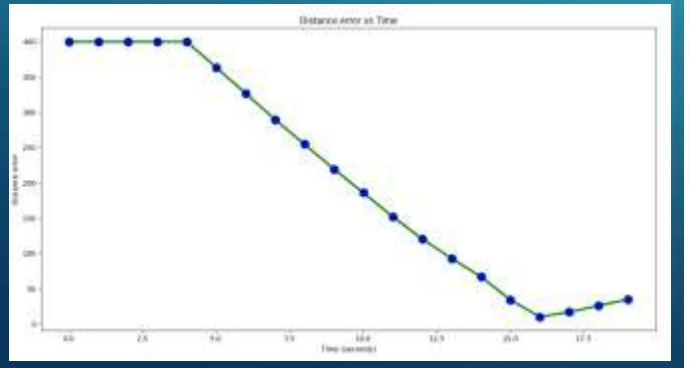
Autonomous surface vehicles require hardware and software to operate how we intend them to

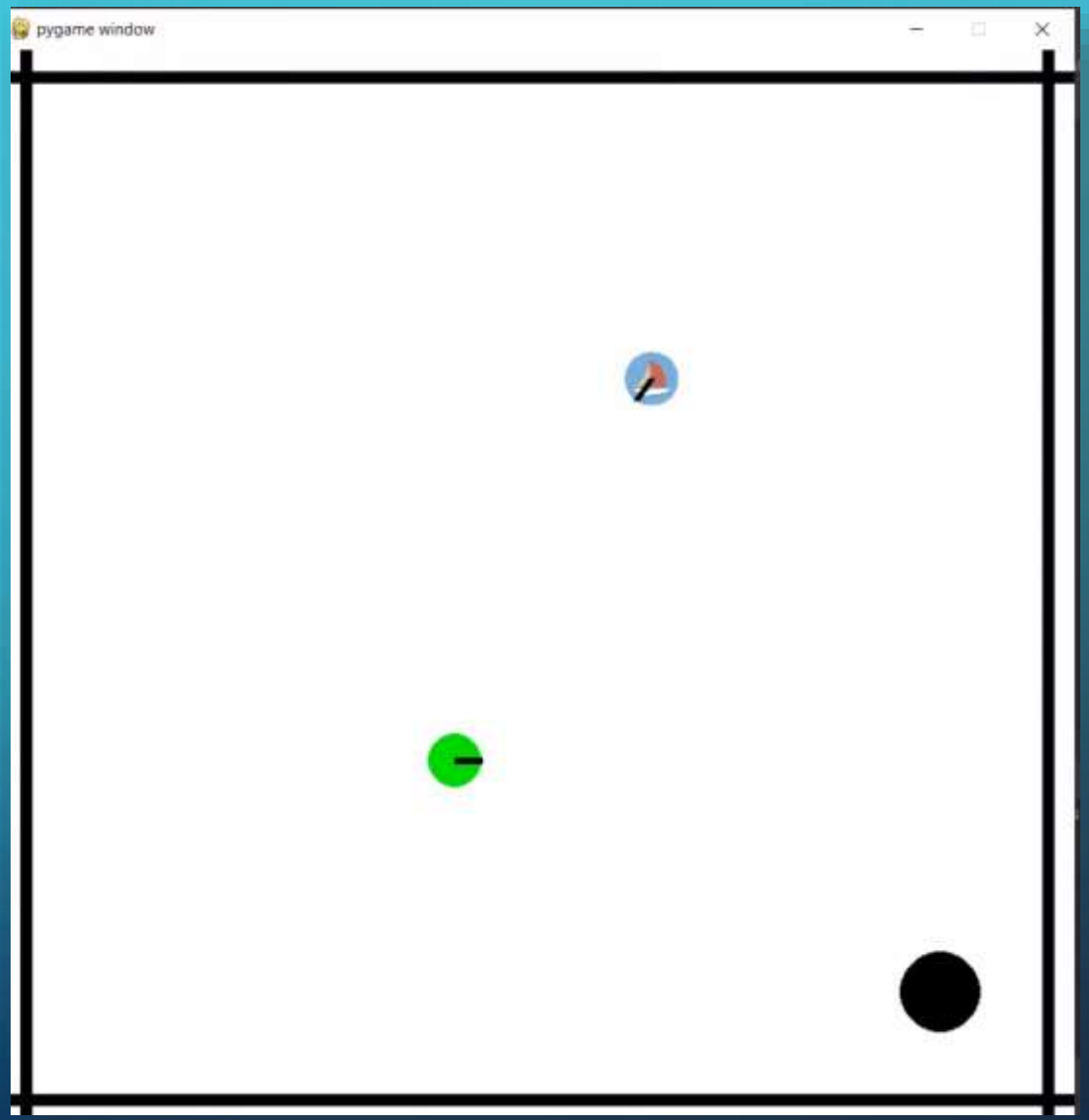
My goals this summer included:

- Writing simulations
- Developing hardware
- Experimentally test

Miniature Autonomous Surface Vehicles (mASVs) Simulation







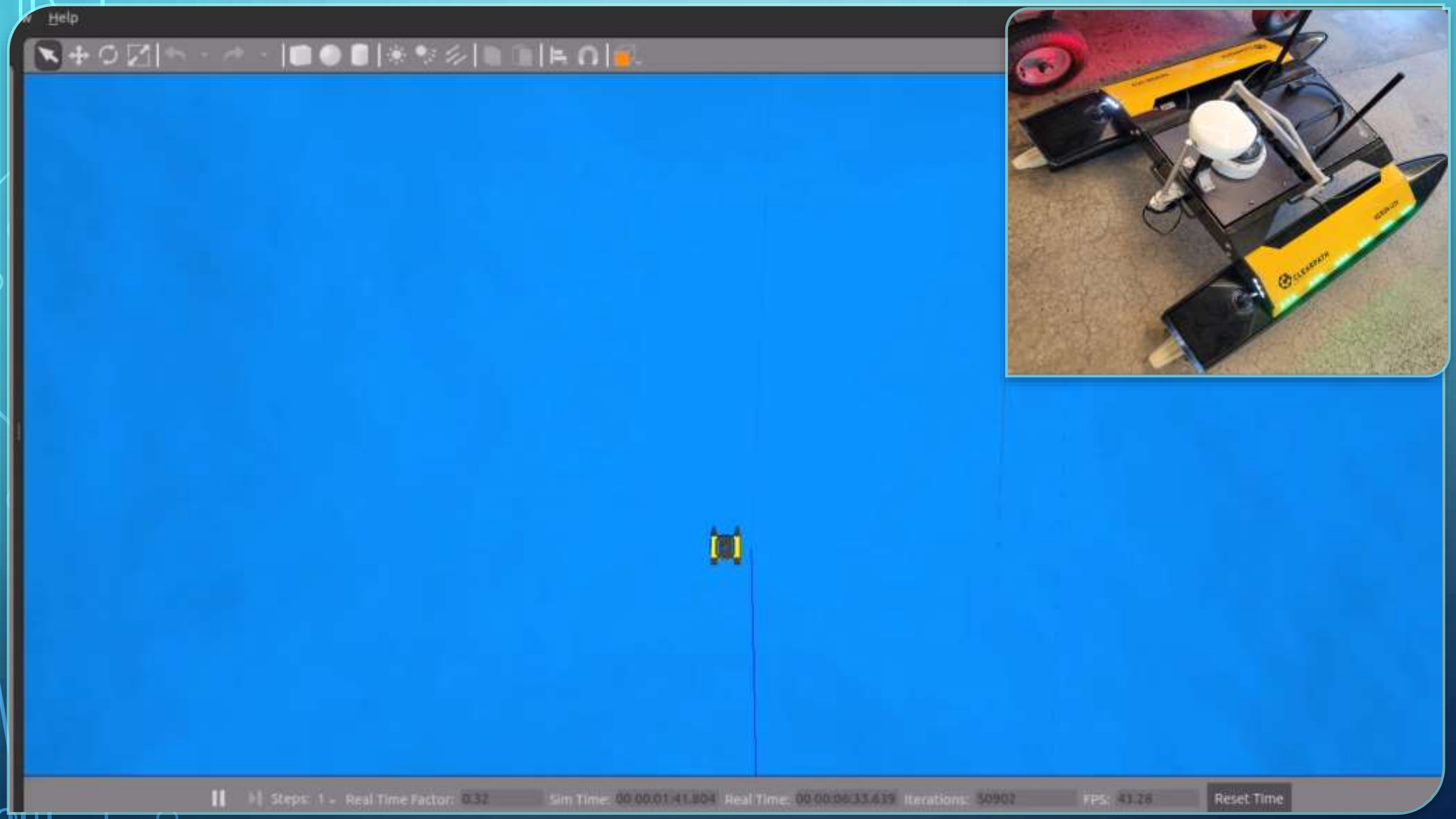
Legend

Tiny boat

Styrofoam

Target

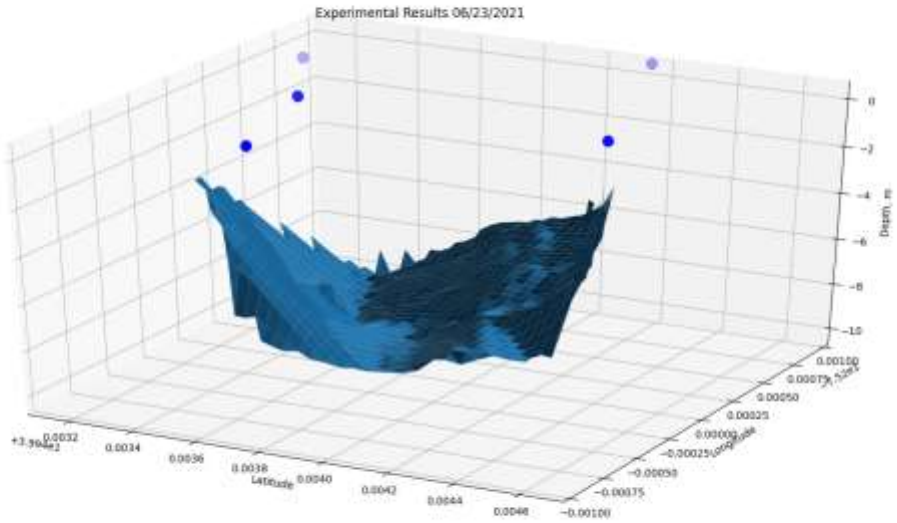
HERON SIMULATION



LAWNMOWER-PATTERNED-WAYPOINT GENERATOR

PRINTED CIRCUIT BOARD

- Designed RS232 to USB converter
  - PCB that allows us to plug more sensors into the robot



FIELD EXPERIMENTS

- Every other Wednesday tested different functionality on the Heron
- Tested depth sensor and collected data on the Schuylkill river
- 3D map of Schuylkill riverbed

ACKNOWLEDGEMENTS

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QUESTIONS?