

Autonomous Target Robot

Team Members:

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- Megan Uozumi
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Faculty Advisor:

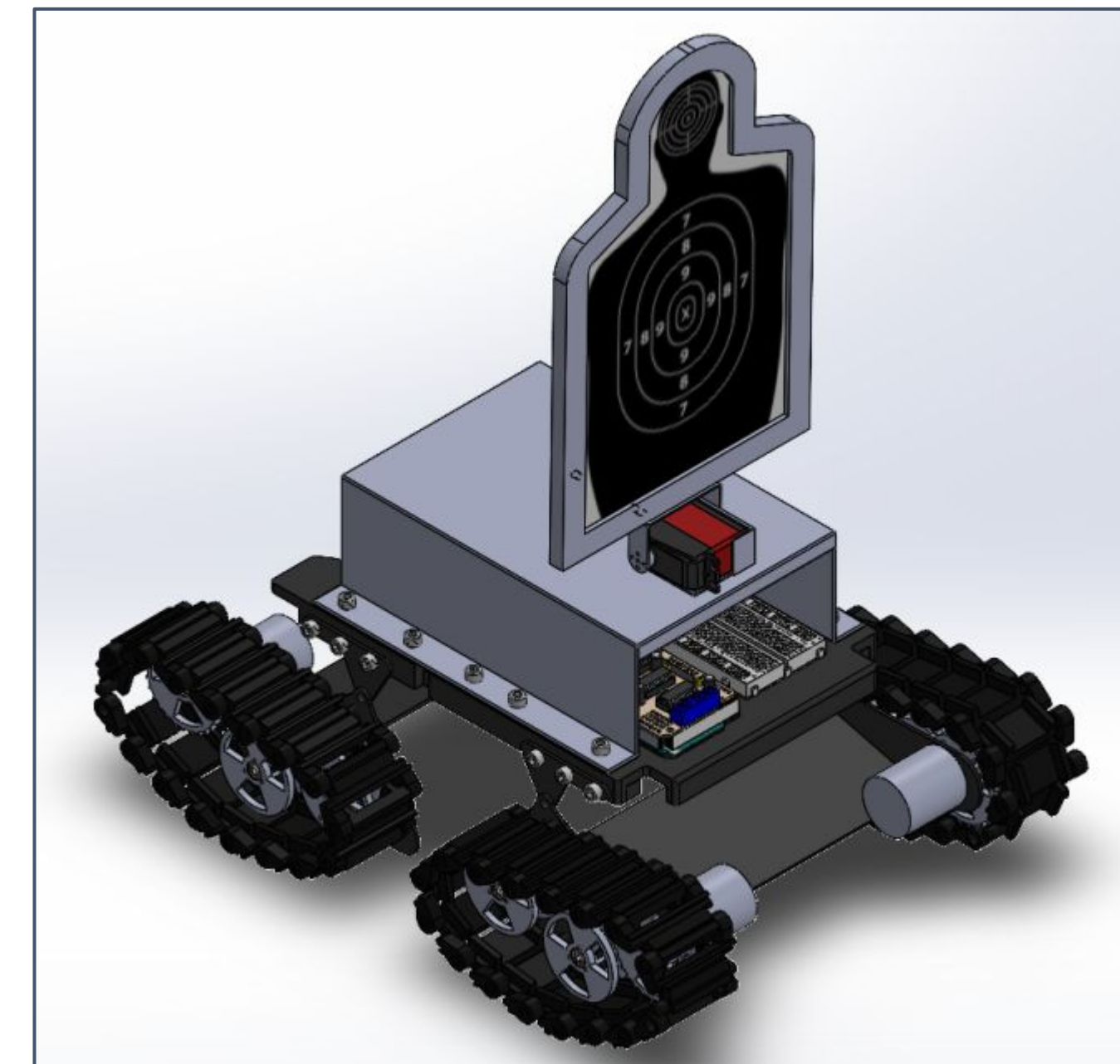
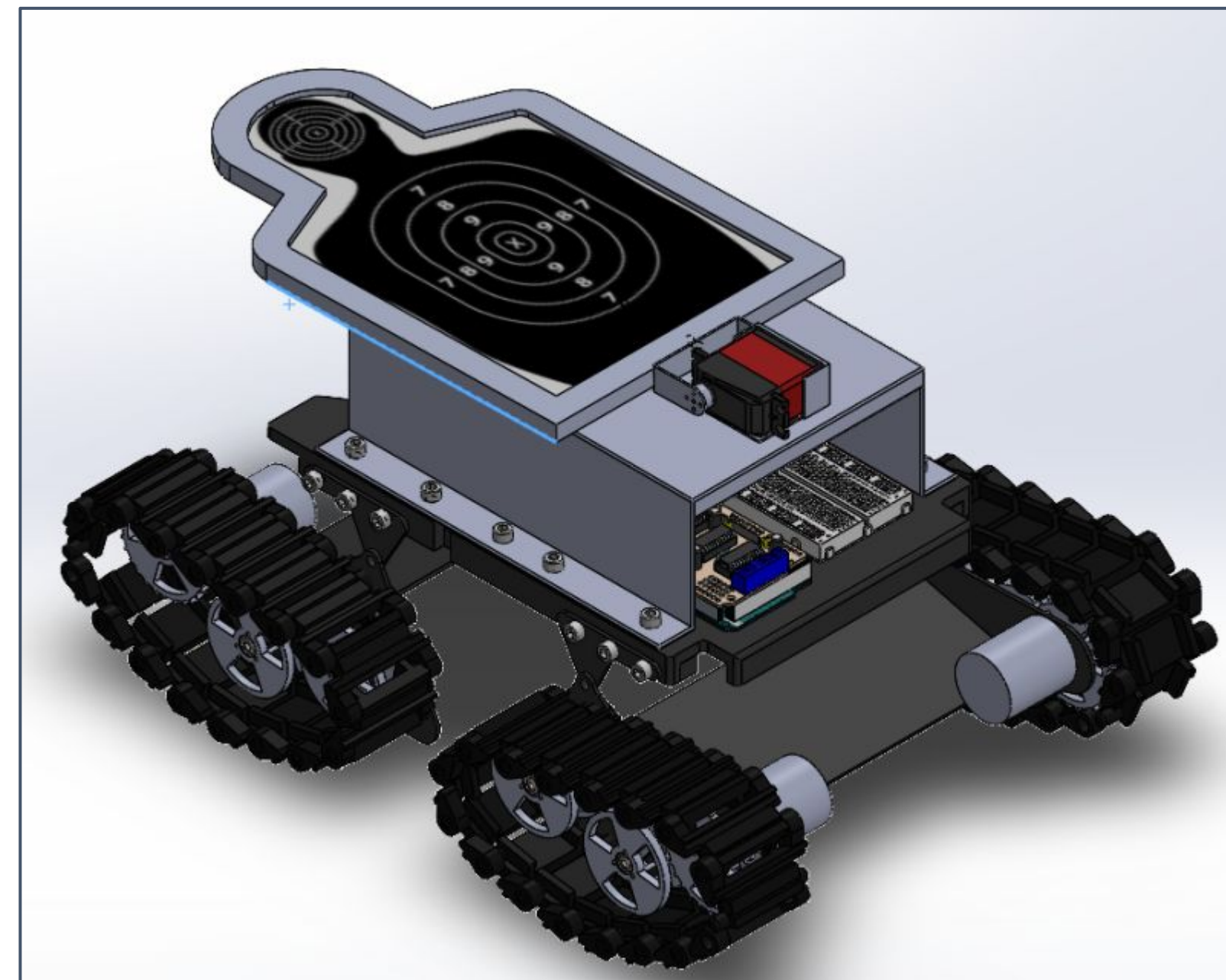
- Prof. Zak (Zaher) M. Kassas
- Zeinab Shadram, Ph.D.

Background:

The autonomous target robot project is a naval research project. The purpose of the project is to design, program, manufacture, and test an autonomous vehicle that can locate pre-determined GPS coordinates and present a target to the shooter. This is a new project at UCI, and the team is a small group of undergraduate engineering students from the MAE department. We plan to design the robot during Fall quarter, and manufacture and test it during Winter quarter.

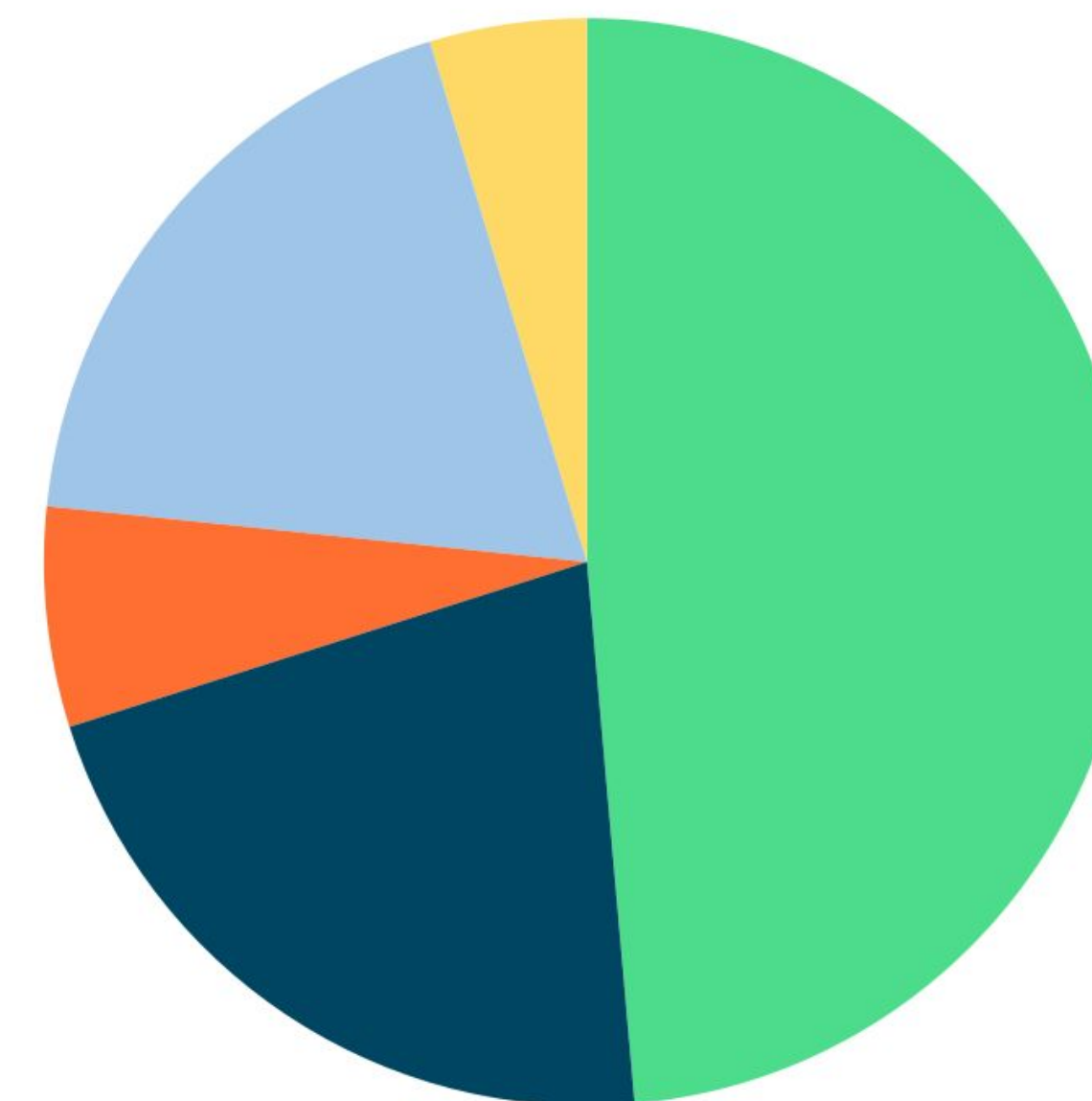
Goals and Objectives:

- Design the vehicle chassis and body
- Write a program that directs the car to pre-designated GPS coordinates and presents a target oriented towards the shooter
- Incorporate sensors that detect when the target has been shot
- Manufacture the robot and assemble electronics



Budget Breakdown:

- Chassis (Frame, Treads, Motors)
- Battery
- Sensors
- Electronics
- 3D Printing



Technical Challenge:

- Our design utilizes a vibration sensor placed on the back of the supporting arm for the target that will serve as a means of identifying when the target has been struck. When the amplitude of the vibrations detected is significant, the robot will assume it has been hit, and move to the next set of coordinates

Future Improvements:

- Sensors on the front of the vehicle that can be programmed to aid in object avoidance would improve on our current design.

Safety Considerations:

- All of the electronics on our vehicle are small and have been placed as far away from the target as possible (especially the battery) to avoid possible damage from incoming projectiles.

