Anteater Dynamics
7 DOF Robot
01/23/2025 - 01/30/2025

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Summary

Over this past week, Anteater Dynamics primarily focused on operational tasks. The team developed a contract that our members are meant to follow over the project lifespan. The team is currently working on problem definition, gaining an understanding of what specific components and needs must be integrated into the system. Additionally, a basic linkage design was created in Solidworks, validating the number of degrees of freedom and getting a basic understanding of the kinematics of the robotic arm.

https://github.com/ishan-malik-25/AnteaterDynamics

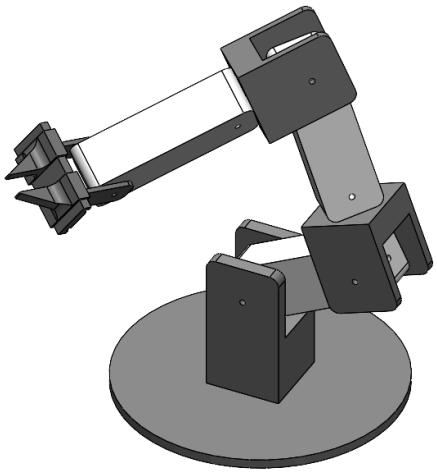
Goals

Goal 1: Kinematic validation of robotic arm with 7DOF

Goal 2: Developed problem definition for project objectives

Outcomes

Goal 1: Kinematics Validation



- Kinematics mock-up of 7DOF robotic arm in Solidworks

Goal 2: Problem Definition

Problem Defenition

- Problem Definition presentation is in progress

Moving Forward

Plans before the next reporting period include refining and performing simulations to verify our kinematic outline further. The Mechanical sub-team will take the lead in the outline, while the other team members will provide support and feedback.

The electrical team will continue to finalize the actuators and other components needed to transition from modeling and simulation to physical prototyping.

The software team will begin to set deadlines and objectives to familiarize themselves with the ROS and Gazebo software environment.

We anticipate encountering challenges in any initial simulations especially as we continue to refine and clarify our design requirements and needs. The concept generation stage for our kinematic outline will require a lot of back-and-forth between the teams so we need to take into consideration the time needed to spend on the project.

Time Tracking

1/24 (3 hours, ALL)--Completing Sponsorship Interview Summary
Teammates collaborated on summarizing key takeaways from the initial sponsor interview last Thursday

1/27 (1.5 hours, ALL)--Completing Team Contract
Teammates collaborated on establishing norms on how the team will function going forward. An organizational chart was established and individual design roles were assigned.

1/28 (1.5 hours, ALL)--Existing Solution Research and Preliminary BOM prep
During our lab time, we explored existing robotic arms to start thinking about how we could approach the problem. Additionally, system needs and requirements started to be brainstormed

1/29 (1.5 hours, ALL)--Problem Definition, Timeline creation, Public Documentation
During our lab time, more work was done on our problem definition. A Gantt Chart was started to track the team's group and individual tracks. The type of public documentation was decided, and a GitHub Page was created

1/29 (2 hours, Ishan)--Preliminary Linkage CAD
Preliminary design of our CAD model was developed by Ishan with input from the team.

Link to Gantt Chart
Link to GitHub

WBS NUMBER	TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION	% OF TASK COMPLETE	PHASE ONE													PHASE TWO															
							WEEK 1					WEEK 2					WEEK 3					WEEK 4					WEEK 5					WEEK 6				
							M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F
X	**ROBOTIS Objectives**																																		
A	*Project Outline Discussion and Defining Parameters*	ALL	WK3	WK4		50%																													
B	*Initial Virtual Kinematics Validation*	ALL	WK4	WK5		0%																													
C	*Problem Definition and Initial Physical Prototyping*	ALL	WK6	WK7		10%																													
E	*Physical Prototyping Design*	ALL	WK7	WK8		0%																													
F	*Bugfixing and testing*	ALL	WK9	WK10		10%																													
F	*Initial Design Review w/ Functional Prototype*	ALL	WK9	WK10		10%																													