DC/Virginia
Explorer Post 1010
Team #160

Organization and planning

i) General Meeting days:	- Wednesdays: 7-9 PM - Saturdays: 10 AM - 1 PM, meeting time flexible depending on what tasks need to be completed.
ii) Competition dates:	- Regionals for Greater DC: April 26th - GCER: July 8th-12th
iii) Documentation deadlines:	- Period 1 Documentation Deadline: 3/14/25 - Period 2 Documentation Deadline: 4/4/25 - Period 3 Documentation Deadline 4/18/25
iv) Known Conflicts	- Time: Not everyone can come to every meeting because they have different schedules - Space: We borrowed space from the local science center and had to share the space with two other teams. - Resources: We are on a budget and are unable to acquire new materials. Some motors and batteries are inconsistent, resulting in continuous adjustments to the robot and code.
Progress Checkpoints:	1. Finish building the arena by end of January.

	2. Complete preliminary building for both robots by end of February. 3. Finish initial coding the program for both robots by end of March. 4. Test the robots and make adjustments throughout April.

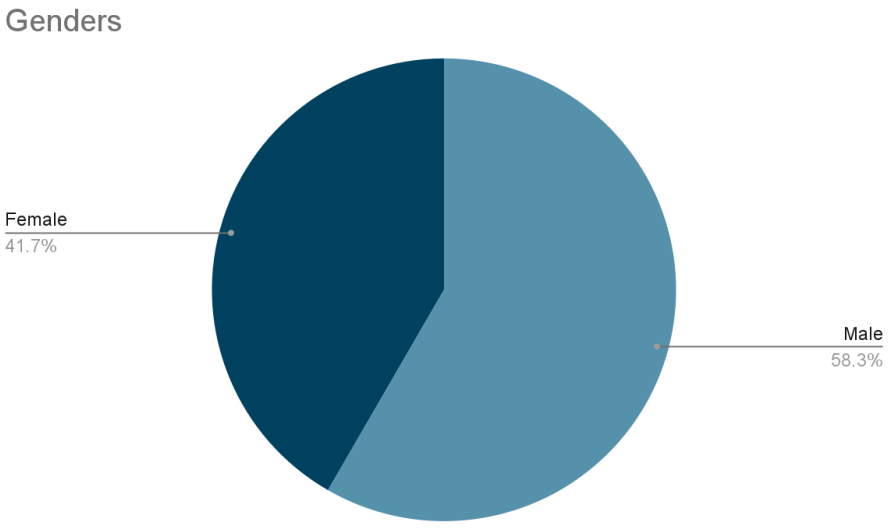
Team Organization

1. Division of Labor

The team will be divided equally so that both robots will be given proper support. Each member of each team has their tasks, such as being a coder, builder, or tester.

- Captain: Abigail
- Builders: Sofia, Isabella, Mateo, Samir
- Coders: Abigail, Evie, Mason, Kingson
- Documentation: Rayhan, Alia, Ryan, Samir
- Adult Mentor: Bob Ekman

2. Demographics - Pie Chart of Team Gender Distribution



3. Conflict Resolution

a) If a conflict arises, it will be resolved in one of the following manners:

i) If there is a dispute over different possible coding or building solutions, members will quickly make prototypes of each and make test trials to see which robot functions more effectively

ii) If a solution cannot be made in that short timeframe, the team will vote on whichever model has fewer errors. In general, the majority choice will be the one the team goes with, however, there should be a clear reason why that method is chosen.

iii) If we cannot determine which course we should take action on, the captains will have the final say in the matter.

Game Goals and Tasks

1) **Task to Complete in the First 15 Seconds for Robot #1**
    - Start gathering the entrees to put in the serving area
        - Design an intricate arm with multiple capabilities to both pull out a cup and slide the food forward while also maintaining a steady center of mass (3 - Hard, 3 weeks).
        - Code line sensors to put the robot back on track if it starts veering to one side (2 - Medium, 1 week).
    - Go to serving area and deposit entrees
        - Use line sensing to be perpendicular to the entrees to have the best chance of depositing them in the correct spot (2 - Medium, 2 weeks).
        - Figure out a plan, either with software or mechanically, to avoid having pompoms stuck in the wheels (2 - Medium, 1 week).
2) **Task to Complete in the First 15 Seconds for Robot #2**
    - Grab botguy
        - Design a lightweight arm that will still be long enough to reach botguy (3 - Hard, 2 weeks).

    - Code line sensors to properly align the robot (2 - Medium, 1 week).
- Grab potato
    - Figure out how to align with the potato without knocking it over (3 - Hard, 3 weeks).
    - Back up and lower arm at the exact right distance to obtain the potato (3 - Hard, 2 weeks).

2. What We Will Do if a Task Takes Us Too Long to Complete

a) Get together as a group and revisit our options.
i) If other people have different ideas as to new missions we can attempt, we can take some time to make a sketch and discuss it as a team.
ii) The most likely solution is getting together to find another solution or modification to the same task, and using everyone's ideas, we can find a more efficient solution.

b) Go over the way to score points again to ensure we are using the whole board to the maximum.
i) Check how many points each proposed task will get us as opposed to the previous design.
ii) We will continue to work with the task if it has significantly more points than any other feasible task.
- This includes possible modifications to the design or sticking with what we have and reinforcing the structure.

iii) If it seems like switching to another task would greatly improve the trajectory of the robot, we will take a vote own heter to switch up which mission our robot is accomplishing.

<u>Documentation Goals</u>

1. Documentation Plans

a) Complete the first-period documentation; 3/12/25
i) Have a short meeting at the beginning of our work session to make sure we are all on the same page with the pace we're moving at; 2/7/25

ii) Have multiple mentors check our plan to make sure we will be fully prepared by the time the competitions approach; 2/7/25

iii) Have the adult mentor review the final documentation for the first period; 3/5/25

b) Complete the second-period documentation; 3/26/25

i) Select the most developed mechanism on one of our robots to use for the video. Create a group of people on the team to work to ensure that information is being recorded as we go; 3/6/25

ii) Teach new members how to use GitHub by reading documents provided and/or consulting with members that already use GitHub and applying it to code; 3/6/24

iii) Have the whole team and adult members review Project 2 documentation before our submission; 3/22/25

c) Complete the third-period documentation; 4/16/25

i) Go over lessons learned throughout the season thus far with the team members and what we would have done differently. Use these reflections to finish the lessons learned part of the documentation; 3/27/25

ii) Have everyone decide on a time outside of the meeting for the team to finish the online survey providing feedback so that we do not interfere with potential work time that we would have during the meeting; 3/28/25

2. Passing Knowledge onto Future Teams

a) Create a Post 1010 Google Drive Folder

i) Add images of our designs in progress as we continue to develop our ideas to this online folder to inspire future teams and also show them how much designs can change over a short amount of time.

ii) Upload our brainstorming sketches next to the completed prototype to demonstrate how a design should be planned out.

b) Create a virtual note sheet

i) Use this to take note of what building/coding techniques have worked.

ii) We will write down what we would have done differently if we had to do it over again.

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Outreach and Volunteering

1. Continue posting on our team's Instagram

a) Create posts of us working hard on our robots, displaying all the parts and supplies we have available to encourage others to participate in future Botball events.

b) Provide information on how to join the team or come to an open house detailing the events and procedures that the team goes through.

2. Volunteering

a) **Volunteer at Rockville Science Day:** Have functioning, well-coded robots running by Sunday, April 27th, when we will show what we have done to young children who may be interested in Botball in the future. Show other kids that robotics is fun through our enthusiasm and participation in a variety of events.

b) Volunteer at local elementary and middle schools: We attend STEM nights organized by the schools throughout the 24-25 winter. We have created an informational tri-fold about botball and presented to the children, showing them why robotics is fun and what we do on at a typical work session.

c) We meet in the storefront of the Rockville Science Center. People walking by in the town square can see and talk to us. We use this opportunity to show off our work and the Botball program.