



Computer Science Club

Evergreen Valley College
Official Document
Project #7: Robotics

Instructions

EVC Computer Science Club will provide resources to members to use for this project. Members will form 3 groups; each will receive one robot and determine what to do with the robot (see suggestions under section Pathway Options). Each group will nominate a project manager to lead the team.

Through this project, members will learn the fundamentals of robotics by assembling parts of a robot and programming it to achieve some meaningful task.

Upon completion of the project, members will be expected to submit a project report. **For this project in particular, members will also be expected to present their projects at a club meeting at the end of the semester.** Please refer to the **Submissions** section for more information.

Please also make sure to view the recommended project options.

Tentative project schedule

- ~~Week 1: Introduction, planning, & developing (Mar. 12 – Mar. 19)~~
- ~~Week 2: Lecture, prototyping, & developing (Mar. 19 – Mar. 26)~~
- ~~Week 3: Designing & Developing (Mar. 26 – Apr. 2)~~
- ~~Week 4: Finalizing Prototype, preliminary tests (Apr. 9 – Apr. 16)~~
- ~~Week 5: Test round #1, revising & repairing (Apr. 16 – Apr. 23)~~
- ~~Week 6: Test round #2 (Apr. 23 – Apr. 30)~~
- Week 7: Final test round, polishing & finalizing (Apr. 30 - May 7)**
- Week 8: Submissions, Contests, & Presentations (May 7 - Final Club Meeting)**

Resources

- Robot source code & resources/information:
<https://github.com/YahboomTechnology/Raspberry-pi-G1-Tank>
- Overview video: <https://www.youtube.com/watch?v=d-S12c1N9kw>
- Instruction manual:
<https://github.com/YahboomTechnology/Raspberry-pi-G1-Tank/tree/master/08.Instruction%20Manual/New%20manual>

Project Pathway Options

1. Design an original project / task for the robot to achieve

➤ Suggestions:

- Maze solving
- Pathfinding/calculating the fastest possible route
- Moving one object from location A to location B
- Programming mobile control of the robot

2. Run various experiments (minimum 5) on the robot's built-in features

➤ Suggestions:

- AI recognition
- Custom tasks using Raspberry Pi
- QR scanning
- Obstacle course

Project Manager Requirements

1. Must be an EVC student
2. Must have a safe space to store and utilize the robot
3. Must be an effective coordinator & good leader
4. Must be able to meet in person once a week

Other Information

- Members must be able to communicate with each other outside of meeting hours.
 - Recommended resources:
 - Discord
 - iMessage
 - Whatsapp
 - Messenger
 - Instagram

Submissions:

This project is due on May 7, 2024 at 3:30pm. Please submit a complete project report as a file or a link via the club's Discord server.

For this project in particular, members will be expected to present their projects at a club meeting at the end of the semester. Members should have well-designed, legible slides to go with their presentations.

The presentation should include the following information:

1. A title/name for the project
2. The full names of all individuals who contributed to the project
3. A basic description of the project. Below are some guiding questions.
 - What is the project? What does it do? What is its purpose?
 - What features does it have? How does it work? How was it made?
 - Describe the assembly process and various challenges encountered.
 - What were your prototypes and what changes did you make throughout the duration of this project? How did you overcome challenges?
 - You may record a video and attach a YouTube link to the report as a visual demonstration of how your project works
 - You may also include images or GIFs, but you must provide some explanation for each attachment if they are not self-explanatory
 - Alternatively, you may demonstrate how your project works in-person.
4. Include all of the code/resources utilized and an indication as to whether you consent to have the project submission publicly released.
 - The project's code and resources may be uploaded via GitHub or through another accessible means.

Scores will be assigned based on the following categories:

Requirements not met (0-5), Approaching standards (6-7), Adequate (8), Good (9), Excellent/All standards met (10), Outstanding/Standards exceeded (10+)