

Request for Proposal

A Request for Proposal (RFP) is an invitation for enterprising organizations or individuals to help a client to solve a problem. Read the background information below and see if you can offer a solution.

Sponsor Overview

Robot University is located in a downtown area of a major city. The board of directors received a grant to increase the enrollment of commuting students, but there is a limited area for parking. Robot University is looking for a scaled prototype of an automated parking garage that will maximize parking space and increase the efficiency of the car entering and exiting processes. The prototype will need an interface for communication between the robot and the user, a program that can track the availability of parking spaces, and a mechanical system that can present the correct available space. When in use, the garage should sound an alert to maintain the safety of users.

Research Description

Robot University is offering a contract to a company that can develop and demonstrate a prototype of an automated parking system that will increase parking space and efficiency.

The prototype will be a scaled model of an actual parking system. It will provide parking for toy cars. The prototype must be structurally sound and contain at least four parking spaces. The robot should be able to identify those parking spaces by using a color-coded system. This will require the use of at least two sensing systems (or input devices). The robot's LCD screen should allow communication between the robot and the driver. The LCD screen will ask the driver to indicate whether the car is entering or the car is exiting. The driver can then scan a colored card so that the robot knows which parking space is wanted. The robot should then move the correct available space to where it can be accessed. While moving, an alert will sound to warn of the automated parking system's movements. The toy cars can be manually picked up and placed in spaces as needed during the prototype demonstration.

Overall Project Deliverables

1. Written Proposal
2. Prototype Demonstration
3. Engineering Journal

Deliverable 1: Written Proposal

The initial written proposal will be delivered by _____ (date).

The written proposal should be a professional quality submission that includes the following information:

- Company introduction that includes the names and background of all team members
- Descriptions of each team member's responsibilities
- List of materials needed to complete the project
- Clear description of the methods and technologies to be used to create a solution
- Support materials such as research notes, sketches, flowchart(s), pseudocode, etc. should also be included to support the written proposal.

Deliverable 2: Prototype Demonstration

The small-scale prototype will be submitted by _____ (date).

The design team must demonstrate and explain the prototype. They should explain how its design successfully meets the challenges and requirements listed. The prototype should be a fixed robotic platform that will accurately and efficiently manage parking spaces. The prototype must include the following:

- 4 parking spaces with a mechanical system that can move the correct available space to where it can be accessed
- an interface using the LCD display that asks whether a car is entering or exiting
- a control system that can identify a parking space using a colored swipe card, and track whether or not that space is available
- at least two sensing systems
- an alert sound that warns of system operation and movements (for safety)

Deliverable 3: Engineering Journal

The engineering journal will be submitted by _____ (date).

Every member of the team will be responsible for turning in a well-maintained journal that will include:

- Early sketches of your prototype
- Daily/weekly journal notes that explain what has been accomplished during that time
- Any other relevant project notes