Team Papaya Project Plan

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Document Overview

This document will go over our initial project proposal. It will cover the ideas, features, aimed target audience, and our management plan to stay on top of tasks. This document also includes technologies which will be required to develop the project. Finally, it covers potential risks and our plans to mitigate them while following our project plan.

Project Proposal

Overview

Team Papaya's project idea is to develop an information system that analyzes the availability of parking lots on the VIU campus. We then use this analysis to let users know how likely they are to find a parking spot at any given time to help students, faculty, and staff find a parking spot quickly. The target audience of our project are VIU students, staff, and faculty. There are two key features planned. The first is a display of maintained, up-to-date analysis of the availability of each parking lot on campus. The second key feature is a feedback system in which users validate whether or not the system is displaying correct information.

Target Audience

The target audience of our project are VIU students, staff, and faculty. We identified that efficiently finding a parking spot on campus is a problem for students and staff. Our project aims to solve this problem. Not being able to find parking quickly is not a major problem on its own, but when compounded with the multitude of other problems that students have to navigate everyday, wondering if they are going to be able to find a parking spot should not be a concern. It contributes to extra stress and anxiety.

Preliminary Features (listed by priority)

- Display of up-to-date information on parking availability in each parking lot on campus. (essential)
- User validation process that skews the information that the system displays. (essential)
- Forecasting parking lot availability in the future by getting estimated time of departure from users. (would be nice, not essential)

Management Plan

Overview

Team Papaya is to distribute tasks and subtasks internally to complete and submit deliverables before their deadlines. To keep track of each deliverable and its subtasks thereof, team Papaya

has created an interactive board in Trello where each deliverable is specified with its respective deadlines, and all of its subtasks with detailed descriptions for each. As a team, the members of Papaya have agreed to independently choose and complete at least one subtask that pertains to the deliverable in question. Collaboration within independent tasks is also encouraged if required. The main aspects of the management plan include but are not limited to the following.

Task Tracking

Team Papaya is utilizing Trello board to keep track of all deliverables and subtasks assigned to each member. Please refer to this link for an organized list of deliverables, and each member's roles and responsibilities.

Technical Processes

Team Papaya will use the git repository provided to students as the main branch of the product. Each member will create their own branch on their own session by pulling the main branch from a pup or cub, where all code will be written, compiled, and pushed back to the main git repository assigned to our team. To avoid merging conflicts, the team will discuss and agree what team members are to implement what parts of the product. These technical processes will be carried out with use of the following tools and technologies:

- C++ as the development language for the implementation of the product's functionality
- Use of OpenCV libraries for C++ and OpenCV GUI extensions as required
- Oracle and SQL as the database management environment and language
- And optional use of IDE's such as VS code or CLion

Additionally, team Papaya will adhere to deliverable standards as specified by the instructor and coding standards such as:

- Comments on every function and every block of code as required with either single line or multiline comments, and comments on every OpenCV library function in use
- 3-space indentations
- Closed () brackets for every loop conditions and closed {} brackets for every block of code within loops
- And use of global variables with comments as required

Risk Analysis

Risk Framework

Identified Risks

Risk: Members individually unable to effectively learn or navigate the OpenCV API. **Type of Risk:** Technological **Description**: OpenCV (Open-source Computer Vision) is a library of programming functions mainly aimed at real-time computer vision. It is a key technology in the project because it allows our team to perform the image processing necessary for our application. If team members are unable to effectively learn how to use the OpenCV API, it could lead to delays in the project and a lack of functionality in the final product.
Risk: Difficulty finding useful parking lot footage for OpenCV training. **Type of Risk**: Resource **Description:** The footage is key because it is used to train the computer vision models using OpenCV library. Without adequate footage, the models may not be able to accurately detect parking spots, cars, and other relevant objects. If the team is unable to find sufficient footage, it could lead to delays in the project and a lack of functionality in the final product.
Risk: Decrease in team morale and communication. **Type of Risk:** Organizational **Description:** Team morale and communication are key because they are essential for maintaining a positive and productive working environment, and for ensuring that the team is working together effectively towards a common goal. If team morale and communication decline, it could lead to a lack of motivation, increased conflicts, and a decline in the quality of the work produced by the team.
Risk: Team members unable to make time for the required project deliverables. **Type of Risk**: Scheduling **Description:** Team members' time is key because it is necessary for completing the project deliverables and meeting the project schedule. If team members are unable to make time for

the project, it could lead to delays in completing deliverables and ultimately missing the project deadline. This could become a particularly pressing issue as the semester progresses and course workloads increase.

Impact

Low → High

Likelihood

High ↑ Low

		Members individually unable to effectively learn or navigate the OpenCV API.	Team members unable to make time for the required project deliverables.
			Decrease in team morale and communication.
		Difficulty finding useful parking lot footage for OpenCV training.	

Risk Plan

	Risk Name	Risk Description	How risk will be monitored	Plan	How risk will be mitigated/shared/ dealt with
1	OpenCV API Competency	Members individually unable to effectively learn or navigate the OpenCV API.	25% over our estimated time to learn the agreed OpenCV concepts.	Share	Every team member will spend time learning the agreed-upon concepts in order to increase the likelihood that cumulative team knowledge of OpenCV is sufficient to produce a minimum viable product.
2	Useful Training Footage	Difficulty finding useful parking lot footage for OpenCV training.	Anything under 5 usable photos/videos.	Mitigate	We will produce backup training footage and/or pictures if useful and consistent footage or pictures cannot be acquired.
3	Decreased Team Morale & Communication	Risk of decreased team morale and productivity due to a lack of effective communication resulting in team members feeling like their ideas or opinions are not being heard.	50% decrease in team member engagement.	Mitigate	In alignment with our Team Contract expectations, we will conduct team check-ins every Thursday to ensure team members
4	Time Management	Team members unable to make time for the required project deliverables.	Missed internal subtask deliverable deadlines.	Share	This risk will be managed proactively through communication to understand the subtask requirements that are behind schedule, and sharing any potential extra workload if this situation were to arise.