Project Proposal

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Problem and Solution

Going to a new restaurant and trying out new cuisines sounds exciting and looks like a lot of fun, however, reading an alien menu for the first time can prove to be challenging when forming our decision to make an order. A lot of foodaholics of all ages face the situation where they don't understand the menu, and are hesitant to take the risk in ordering a new dish, not knowing if it will match their taste preferences. Providing a quick YouTube video or 3D model of a food item will illustrate what they'll be receiving, should they decide upon that specific choice. With an app that can scan QR codes on the menu, and the large number of people who have smartphones, this is entirely possible. Having this app in the market will not only encourage people of all ages and different backgrounds to try new cuisines and restaurants, but also boost the business in the food and beverage industry, opening doors for restaurant owners who wish to target a broader range of customers. Kids especially can be very picky about what food they eat, by judging on the way it looks. AR will be a great addition for even younger children, where they can get a sense of what they will be receiving before ordering.

Objectives

We will achieve the following:

- Let users scan the QR code beside a menu item, then displaying a 3D virtual model of the selected dish, and/or relevant YouTube video of the menu item, along with the average rating.
- Provide a user-friendly UI to accommodate users with different age groups and technical backgrounds.
- App support for both Android and iOS, hence, serving a broader range of users on both the platforms.
- Send a push notification to the user after an assumed order, for them to provide optional feedback and a rating on the ordered dish to help future food lovers.
- Have an available contact method for restaurants to request their models and/or YouTube videos be included in the application.
- A scheduled but slightly flexible software engineering process, with good stakeholder communications.

Importance

Users are provided with an insight into what the food looks like, allowing them to make an informed decision on their order. There are so many different dishes and cuisines out there, but no one can tell how they will appear physically just by reading their names. To differentiate between a simple image and a 3D model, one can simply imagine how a picture of a statue does not do justice in illustrating how it actually looks. If the customer knows what they're ordering, then they will ultimately be satisfied, and potentially more willing to come back. This solution benefits both the customer and the restaurants that choose to support this technology.

Project Description

This project will focus on developing a mobile AR-based restaurant food menu app that provides its users with a 3D AR model of a food menu item when its QR code is scanned from a physical menu provided by the restaurant. Each food AR model and video will be specific to the restaurant, as they will be required to create their own models and/or YouTube video(s). This application acts as an intermediary between the restaurant and its customer. Thus, we will not be required to manage all of the 3D models, nor the videos either. The restaurant must create this themselves and provide us with the information needed to have it work with our app. We will initially be storing proper links with restaurant data, along with ratings of their food items. This aspect could be subject to future change.

Technologies

React Native - Allows us to develop for both iOS and Android with one code base, saving a lot of time and reducing possible errors when having multiple codesets. Our group is familiar with JavaScript and web development so we can quickly begin work without wasting much time on familiarization. The framework provides many open source packages for device specific functionality, many of which have already been tried and tested, so they can be trusted for use.

ARCore - ViroReact is a platform for React Native which is powered by ARCore. It will be utilized for augmented reality purposes.

Scrum Process

Sprint Time: 1 Week

Monday: Sprint Planning
- Look at product backlog
- Determine if a sprint will increase value of product
- Select and prioritize items to be completed during the sprint
- Decompose items into workable chunks
- Partition team members to perform selected chunks

Monday - Friday: Working Days
- Short daily scrum meetings to determine progress of sprint
- Product backlog may be refined if need be
- Communication is key, and the need for longer meetings will be lessened (except weekly meetings time: see below)

Saturday: Review
- Meeting with stakeholder (if available)
    - Obtain additional feedback after displaying application progress
- Inspect outcome of the sprint

- Update product backlog
- Calculate velocity, determining this as the team's performance criteria
- Maintain set of notes recording all data about progress

Weekly Meetings Time

Tuesdays at 5PM EST

GitHub Page:

https://github.com/Pixelatory/RestauraunAR

Time Plan

Jan 17 - Jan 24:
- Gathering of user stories
- Organization of user stories into priorities
- Start of requirements process
- Conversion of user stories into requirements
    - A hierarchy of needs should be kept tracked here if possible (would help with sprint planning)

Jan 25 - Feb 1:
- Start of overall design process
- Further conversion of user stories into requirements
- Interleaving of requirements and design:
    - As more requirements are created from user stories, designs can be created from these

Feb 2 - Feb 7:
- Software requirement specification and design document finalization
- Initialization of codebase
- Creation of a product backlog from requirements and design
- Team familiarization with the chosen framework
- Sprint planning for initial sprint
- Github strategies for reduced sprint conflicts

Overall design and requirements: Feb 7

Feb 8 - Apr 25:
- Weekly Sprints (view more information in: Scrum Process)

Feb 28 - Mar 7:
- Creation of report 1

- During weekly meeting, discuss major issues
- Use previous meeting notes, designs, implementations, and tests to create the report

Report 1: Mar 7

Mar 27 - Apr 3:

- Follow similar process as week of Feb 28 - Mar 7 for report 2

Report 2: Apr 3

Apr 18 - 26:

- During weekly team meeting, reflect and discuss project completion
- Create a final presentation slideshow, explaining all aspects of the project and its processes
- Create a final report following similar techniques as the previous two reports, but now an overall and complete project report
- Potentially provide some accurate documentation for future developers
- Show a demonstration of mobile application if possible

Final Demonstration/Presentation/Report: Apr 26 - 30