Statement of Work

BioRubeBot Mobile Application

For:
Dr. Sara Cline Ph. D. (Athens State University)

April 24, 2019

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Instructor: Dr. Katia Mayfield
Spring 2019

Date	April 24, 2019
Client	Athens State University
Job Name	BioRubeBot Mobile Application
Requested by	Dr. Sara Cline Ph.D.
From	Senior Software Engineering Project Team – Spring 2019

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Objective

The BioRubeBot project will be an easy-to-use Apple mobile application that demonstrates biological interactions. The interactions within the application are based on a subset of scientifically proven biological rules. The goal is to provide an application that can be used for educational purposes by providing a repeatable series of steps with which a student can advance their learning of biological processes. The project's targeted audience is specifically students in grades K-12.

Scope

The BioRubeBot project will be refactored and updated to Unity 18. Previous issues will be addressed and other optimizations and refactoring will take place. One level will have a template designed to be added to the game. Upload application to Apple App Store, and if possible Google Play Store.

Requirements

General Description

It is common knowledge that students learn subjects in different ways. Some use auditory lectures while others read through books. Another style is interactive learning. BioRubeBot is a biology learning application that will allow the user to create cellular structures and experiment with different proteins used in the cell. The user will learn the structures piece by piece through the first few levels. With the completion of each level, the user will interactively gain a greater understanding of the relationships between the biological proteins.

User Stories

- User would like the game to be refactored in the newest version of Unity.
- User would like for music option to be taken out of the game.
- User would like checkboxes to be added to level 1 and level 2 for hints.
- User would like the checkboxes to not move with touchscreen.
- User would like the Main Menu 2 title to not move with touchscreen.
- User would like cell 5 on Main Menu 1 to pop up and blink every time game starts.
- User would like new transcription regulator object for hints.
- User would like implementation of new transcription regulator object into level one.
- User would like implementation of new transcription regulator object into level two.
- User would like GDP to move in gameplay.
- User would like G-Protein color to stay on object in gameplay.
- User would like background option to not overlay checkboxes.
- User would like level three artwork for alpha subunit object to be created.
- User would like level three artwork for beta subunit object to be created.
- User would like level three artwork for gamma subunit object to be created.
- User would like level three artwork for seven transmembrane receptor object to be created.
- User would like level three artwork for adenyl cyclase object to be created.
- User would like level three to be started.
- User would like receptor movement in level two to be fixed where only the activated receptor moves.
- User would like game submitted to Apple Store.

Added User Stories

- User would like GDP to be on intro level two menu panel.
- User would like menu panel in levels to not disappear when clicking inside panel.
- User would like iPads to be loaded with game for STEAM event.

User Characteristics

The application should allow ease of use with limited knowledge for a target audience of K-12.

General Constraints

Allow user interaction of different base knowledge to progress through the application's levels to create a fun interactive learning environment. The interaction within the levels should closely mimic the interaction of the cells biologically for optimal learning experience.

Assumptions and Dependencies

Users are assumed to have a basic knowledge of computer technology related to the installation and execution of applications. The application is dependent upon Apple and potentially Android platforms.

Non-Functional Requirements

Performance

Implementation should reflect the true scientific nature of the biology it is designed to represent.

Reliability

Produce a consistent, expected result any time the application is used without causing any sort of error.

Security

No data is being collected in the current iteration of this project, therefore there are no current security concerns at this time.

Maintainability

Application should be able to be updated with new content without causing old content to break. It is expected that the application and all of its functionalities will be tested on a consistent basis after new implementations are completed.

Group Hierarchy

Eric Day - Group Lead
Josh Brookover - Development Lead
Will Kelley - Artwork Lead
Page Sparks - Documentation Lead

Group Roles on Tentative Plan

Design and create new transcription regulator - Lead: Will Kelley
Optimize/ refactor current game - Lead: Josh Brookover - Support: Eric Day, Page Sparks
Implement new transcription regulator - Lead: Josh Brookover - Support: Eric Day, Page Sparks
Design and create artwork level 3 - Lead Will Kelley
Design level 3 - Lead Josh Brookover
Documentation - Lead: Page Sparks - Support: Eric Day
Testing - Group
Submit application to App Store - Lead: Eric Day

Tentative Iteration Plan

Review Date	First Priority	Second Priority	Third Priority
Date 1	Learning languages/IDE and research Biology	Refactor current game for new Unity	Design new transcription regulator
Date 2	Learning languages/IDE and research Biology	Optimize/refactor current game	Create new transcription regulator
Date 3	Optimize/refactor current game	Create new transcription regulator	Implement new transcription regulator
Date 4	Optimize/refactor current game	Design artwork level three	Design level three
Date 5	Design level three	Create artwork level three	Optimize/refactor current game
Date 6	Create artwork level three	Implement transcription regulator	Documentation
Date 7	Implement transcription regulator	Documentation	Optimize/refactor current game
Date 8	Testing application	Submit application to App Store	Submit application to App Store