BoilerJourney: Team 27 Product Backlog

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Problem Statement:

Many current or incoming students at Purdue University need help discovering what the school has to offer. This can range from meeting new people to learning about places on or near campus, or just understanding the culture. Some sites are available but their information is spread out and sometimes difficult to find. We plan to make a mobile 2D multiplayer role-playing game to help solve these issues. In this game, users will be able to experience life on campus at Purdue through tasks and missions and have the opportunity to interact with other students/players to make new connections.

Background Information:

Targeted Users:

Just this last year Purdue received 72,800 applications to the university and admitted 50.3 % of those applicants. These potential students and those who eventually accept want information on what Purdue's campus offers. However, finding this information is not only difficult but also not very entertaining. Users of this product are those interested in learning more about Purdue, as well as connecting with other potential or current students.

Similar Platforms:

Some similar platforms include Purdue's website and college information sites like U.S. News and Niche. Purdue's website contains a virtual tour as well as information about the campus and links to their social media accounts. Other platforms such as U.S. News and Niche contain more information on the rankings of the campus as well as breakdowns of the student population.

Limitations of Similar Platforms:

While the information on these sites is helpful, they struggle to capture the full essence of what Purdue has to offer. U.S. News and Niche do not give much information on the campus itself and struggle to give an accurate representation of the culture. Purdue's website has many great features including the virtual tour but this can become very repetitive and dull. Also, these sites struggle to allow

potential students to connect with their peers and get an idea of who they will be spending their next four years with.

Functional Requirements:
1. As a user, I would like to be able to create a new game.
2. As a user, I would like to be able to load a previous game.
3. As a user, I would like to be able to save and view my progress.
4. As a user, I would like to be able to choose a virtual avatar.
5. As a user, I would like to customize my in-game appearance.
6. As a user, I would like to be able to travel around Purdue's Campus.
7. As a user, I would like to be able to view information about important locations.
8. As a user, I would like to be able to view my current class rank.
9. As a user, I would like to be able to rank up from freshman to senior.
10. As a user, I would like to be able to view my current experience and how much is needed to rank up.
11. As a user, I would like to be able to view a leaderboard that ranks all users by their experience points (xp).
12. As a user, I would like to be able to complete various quests and sidequests that reward xp.
13. As a user, I would like to be able to interact with non-playable characters (NPCs) around campus.
14. As a user, I would like to be able to complete tasks that teach me more about Purdue so that I can better understand the university.
15. As a user, I would like to be able to view ratings on important buildings and locations around campus.
16. As a user, I would like to be able to see Purdue during the day and night.
17. As a user, I would like to be able to see the map during the Summer.
18. As a user, I would like to be able to see the map during the Fall.
19. As a user, I would like to be able to see the map during the Winter.
20. As a user, I would like to be able to see the map during the Spring.
21. As a user, I would like to be able to enter Purdue's Memorial Union as the social hub of campus.
22. As a user, I would like to be able to view a global chat with everyone on the current server.
23. As a user, I would like to be able to send messages to other users.
24. As a user, I would like to be able to create chat groups with multiple users.
25. As a user, I would like to be able to join groups centered around various topics.

26. As a user, I would like to be able to find people with similar interests.
27. As a user, I would like to be able to get suggestions about things to do around campus.
28. As a user, I would like to be able to leave public reviews for different places.
29. As a user, I would like to be able to view reviews of restaurants around campus.
30. As a user, I would like to be able to create and/or join a study room with multiple people.
31. As a user, I would like to be able to personalize my in-game dorm room.
32. As a user, I would like to be able to find collectibles around campus.
33. As a user, I would like to be able to display my collectibles.
34. As a user, I would like to be able to view information on Clubs.
35. As a user, I would like to be able to view information on upcoming games.
36. As a user, I would like to be able to use transportation services at Purdue, so that I can travel to different locations faster.
37. As a user, I would like to be able to view a mini-map, so that I can navigate around the Purdue campus.
38. As a user, I would like to be able to have a quest log, so that I can keep track of pending and completed quests/sidequests.
39. As a user, I would like to be able to have an inventory, so that I can store and view all my collectibles.
40. As a user, I would like to be able to view item descriptions of the collectibles in my inventory, so that I can know specific details about an item.
41. As a user, I would like to be able to have a togglable UI.
42. As a user, I would like to be able to experience a storyline, so that I can understand how the game flows.
43. As a user, I would like to be able to submit bug reports, so that the developers are aware of game-breaking bugs/glitches in the game.
44. As a user, I would like to be able to have multiple save slots, so that I can play as different characters in the game.
45. As a user, I would like to be able to have a friend system, so that I can be online friends with players that I enjoy gaming with.
46. As a user, I would like to be able to travel off-campus to nearby towns like Lafayette, so that I can find new collectibles in these locations and expand my gameplay (if time allows).
47. As a user, I would like to be able to trade collectibles with other players.
48. As a user, I would like to be able to view a stats menu, so that I can understand what the stats are, what each stat does, and how many points I have in each stat.

49. As a user, I would like to be able to input and check my class schedule.
50. As a user, I would like to receive reminders for my classes (if time allows).
51. As a user, I would like to be able to visually see on the map where my classes are located.
52. As a user, I would like to be able to view news events occurring around Purdue.
53. As a user, I would like to be able to start a voice chat with another user.
54. As a user, I would like to be able to start a video call with another user (if time allows).
55. As a user, I would like to receive notifications if someone sends me a message (if time allows).
56. As a user, I would like to receive a notification if someone creates a study room (if time allows).
57. As a user, I would like to complete a daily Purdue trivia question to gain XP.
58. As a user, I would like to receive a notification when any of my friends joins the server (if time allows).
59. As a user, I would like to complete an in-game tutorial to understand the game (if time allows).
60. As a user, I would like to customize my controls (if time allows).

Non-Functional Requirements

Architecture:
We plan to develop a mobile application for iOS using the Godot Engine. Using Xcode and the iOS 15 SDK will allow us to test and debug the app as well as distribute it to all devices that run on iOS. We will also implement a separate frontend and backend that will allow us to easily and quickly modify the application i.e., execute continuous delivery.

Scalability:
The game will be split into multiple servers to maximize the quality of the gameplay for each player. We plan to implement this by making the maximum server size to be at most 40 users. We also plan to include server chat cooldowns so that global and individual chats are safe from abuse by high message traffic. Finally, the trading and marketplace system will be player-driven allowing it to scale with a growing player base.

Performance:
The game would run at a minimum of 30 frames per second and respond to touch inputs within 200ms so that players can experience gameplay that is smooth and responsive. We will also ensure that the initial loading screen takes less than 7 seconds so that users can start gameplay shortly after opening the game. We also plan to allow users to switch to a "Low Graphics" mode for faster game performance. We also plan to improve the game performance by implementing Occlusion Culling so that surfaces and objects that are not within the view of the camera are not rendered. Finally, we will allow users to view and switch between servers so that they can join a server with less lag if their device cannot handle the load of the current server.

Usability:
Our game will feature a simple and effective UI that maximizes the options for users while minimizing its difficulty of use. To accomplish this we will place the different UI components in locations so that they do not block important parts of the screen and are reachable for users while holding their phone. Our UI will use simple language that is easy to understand making it suitable for users who may not have played a game of a similar style before. Also, the quests in our game will have a clear objective so that the players can easily understand how to complete the quest. Finally, we will ensure that the map and music do not use any unpleasant or offensive colors or music.

Safety and Privacy:
Users will be protected by Godot's built-in security functions for networking to protect their personal information. This will result in secure and private messaging for those using the chat and trading systems. We will also use Godot's provided encryption system to protect the passwords and data for players. Users will be able to specify what data they want to be hidden from the public to protect their privacy from other players. If time allows we will also implement a system to retrieve accounts in cases of forgotten usernames/passwords and implement anti-cheating measures to ensure a fair gameplay experience for all users.