Code.Fun.Do

Beyond Newton

Design Milestone

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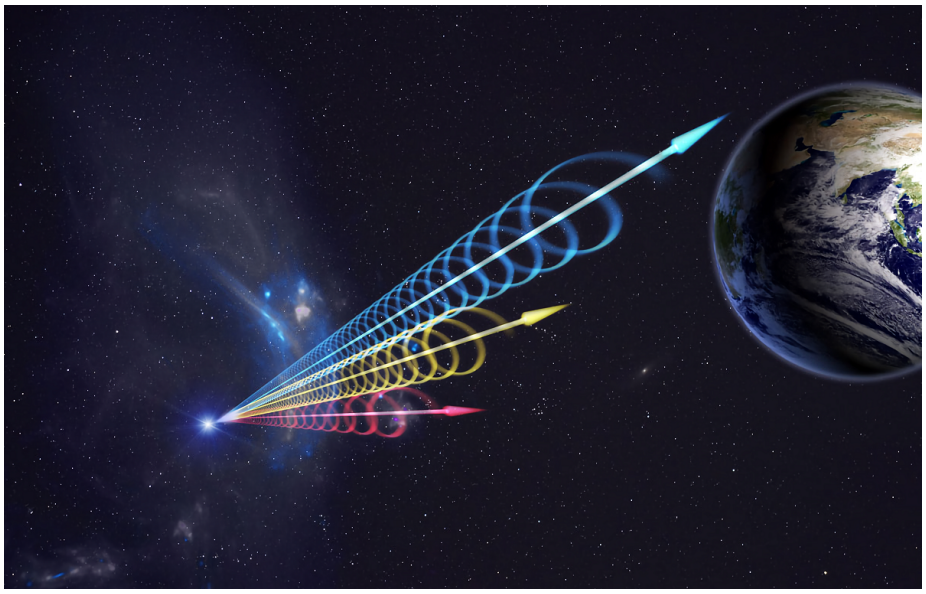
1 Introduction

Our app will be a physics based gravity simulation game. The user has to reach the destination spot by maneuvering their home pod around various gravitational hot-spots.



2 Platforms Targeted

To ensure maximum reach, we will make a universal app so that both Windows Desktops and Windows phones can run the game. Hence:

- Windows Desktops
- Windows Phone

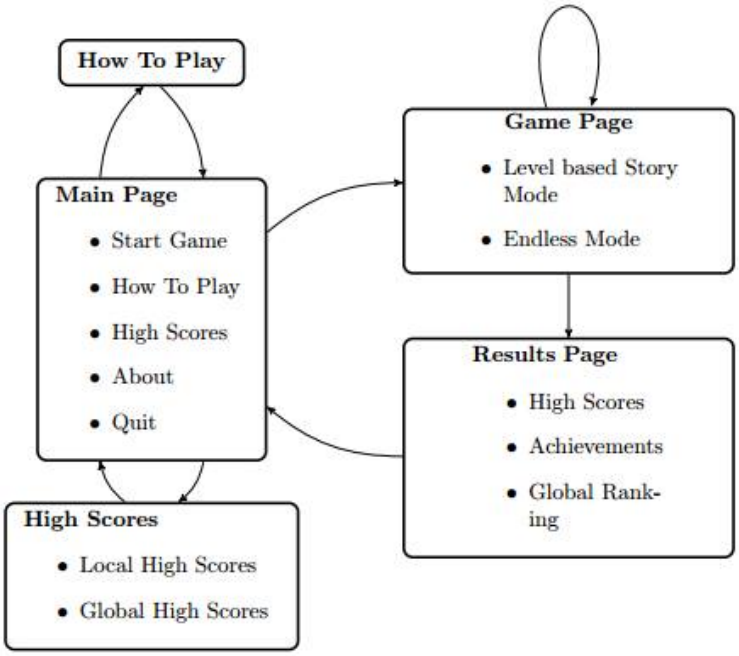
Essentially, it will be a **Universal App**.

3 Tools Used

- Visual Studio
- Azure SDK
  For maintaining a global level leaderboard.
- Adobe Photoshop
  For generating high definition stunning graphics

- Blender
  For rendering the game in 3D
- Bullet Library for soft-collisions and handling Rigid Body Dynamics

4 Event Flow Diagram for the App



5 Summary of the idea

Beyond Newton is a simple puzzle game that will require quick fingers and precision thinking. The aim of the game is to help the home pod reach the destination using various methods used by astronauts to maneuver a space-craft safely in space.

Some features of the game:

- This game requires heavy computation and our aim is to be able to run the game at **60fps** on all windows devices. This will require a well-structured Physics Engine that will be developed in-house.

- For every level, a user gets one speed burst which he can use to speed up the home pod by 50%. This will be kept variable and can be changed via the difficulty setting.
- Special power-ups can be unlocked in the game which can be used as per the user's discretion.
- **Machine Learning and AI** will be incorporated in the enemy bots. ML techniques will be used to determine when the user is loosing interest in the game by tracking the no. of times the user is opening the app and how fast the progress the user is making. This will result in addictive gaming experience resulting in a lot of calls to the Azure API. This can then used to market the app.
- The puzzles will be defined in an articulate and sadistic way to make the game more and more difficult. This might include modelling human behaviour to failure and success in games.
- The game will proceed according to a **storyline** to make it more interesting.
- The objects in the game will be animated to make the game look appealing. The 3D models will be rendered using Blender.

6 Sub Components

6.1 Game Backend

This is the backbone of the entire app. Different classes will be made for different entities of the game. The physics behind the game will be made in an immaculate fashion so that elastic collisions are simulated perfectly.

6.2 Graphical User Interface

The graphics part will be done using unity as the gaming engine. This will allow us to have high quality graphics rendering using the GPU wherever possible. Elaborate detailing will be added to generate HD graphics which will take the gaming experience to the next level.

6.3 Sound effects

As sound is a key component of any application, we will select appropriate background tunes and effects for different actions in the game. This will provide the user with a more richer and fuller experience.

6.4 High Scores Handler

The high scores handler will have to keep copies of high scores and progress on the local device. This will include progress in the story mode and the endless mode. The data will also be communicated to the Azure Database so that a global leader board can be maintained which will make the game more interesting.

6.5 Azure database

The azure database will keep SQL tables for different players and their scores in a sorted fashion so that rankings are available. When global rankings are queried, the data will be fetched from the server and displayed accordingly.