

## Idea Validation

Our Team is working on a video game project That will help the new learners of astronomy and Astro-physics to understand the basics of gravitation, single star system, Kepler's laws in entertaining way that will help them to understand those concepts relatively quicker than reading those theories in addition to, having fun reading those theories

The idea is constructed by Godot game engine because Godot have easy interface compared to other game engines like Unity or Unreal Engine plus having easy script (GD Script) and it is superb for new game developers and Blender Was chosen for 3D modeling as the blender 3D models can be imported easily in Godot

We had chosen 2 teammates to work on blender 3d modeling and 3 teammates to work on Godot to finish the work with ease and on time.

## Resources

item	Description	Cost/Hours
Blender	The program we needed to design 3D objects.	Open source
Godot	This Program is used in designing video games.	Open source
3D builder	Another Program help us in 3D modeling process.	Open source
Game developers	Team members, who have the experience in game developing.	72 hours
3D designers	Team members who have the experience in 3D modeling.	16 hours

## Time plan

	<i>Tasks</i>	<i>Delivery</i>	<i>Start and End Dates</i>
<i>Bootcamp</i>	Identify the challenge	Chose to Build a Planet Workshop	27/9: 2/10
<i>Pre-competition</i>	Creating the game	75% of work done	3/10: 16/10
<i>The competition</i>	Preparing for exhibition	The remaining work will be done	17/10: 19/10

## Project proposal: Code of space

### Problem definition

Our project addresses the challenge which is called “build a planet workshop”, Which means that we have to create our own game that will allow the users to customize the characteristics of a star and design planets that could reasonably exist in that star system. Because of the great opportunities that we found in this challenge, we decided to choose it. Verily, this challenge affects us in a great way. These effects can be seen through the wrong facts planted in the minds of millions. So, this game can increase the knowledge of people about the reasonable features that should exist in any star system like: planet’s size, orbit, atmospheric and surface chemistry, and moons.

### Value proposition

Our idea is a simulation game that allows players to create their own star system and mange it. The game will add values to the players about planetary motion and astrophysics. Our game gives the user the chance to customize the aspects of planets. Like the planet radius, mass and the

shape of stars. The game teaches the player how a stable planetary system operates. The player should be cautious choosing his inputs to make the system stable. Our game was made with the Godot game engine. We also use Blender for 3D modeling.

## **Deliverables**

The solution is designed to give an educational experience about planetary motion and astrophysics. Our game will give the player the ability to create a star and customize its properties, like the radius and the density. Our game will allow the player to create planets, moons, stars and control their properties, like the radius, the density, the number of moons and the characteristics of them. Our game will teach the player how a planetary system operates and interacts and learn about topics about astrophysics like gravitational law and Kepler's laws. Our game ends when the player will fail if the star die

## **Methodology**

### **The science and technology behind our idea:**

Essentially, we are constructing our solution (video game) by following the EDP (Engineering Designing Processes) which instructs us to the solution in the right way of the scientific searching. While we were choosing our idea, we chose the technology that we will work with to construct the video game, which is developing 3d games by "Godot" and "Blender". We are working with this technology as it is easy, has the tools that we need in our game and will help us to extract good product easily. We can't construct our game without considering few sciences that will help us, so we are working with the general Physics and Astrophysics, the purpose from using these sciences is that we want to increase the knowledge of the user about the planets, stars and the star system.

### **The block diagram of our solution:**



This block diagram describes our trip to reach the product which is the video game.

### **The logic behind the software:**

Our game's logic depends on astrophysical laws to simulate the planetary system, like Kepler's laws for planetary motion and Newton's gravitational laws. Our game we give a step-by-step guide to the user on how to use the game, and how to manage their planetary system. The game will give notes on how well they do in managing their system. If the user caused instability in the system or caused the star to die, the game will end and give feedback in what they did wrong.

### **Market survey**

Main Plan: Our team will construct a website and it will have donation option so people who had fun playing the game can have the access to donate us in addition to, having pages on the social media websites like Facebook that will hugely help in increasing the fame of the game and more people will know the game.

Alternative 1: We can use the digital marketing by using the “Magical words” or the frequently used words on the search engines and use advertisements on those websites that are based on those words.

Alternative 2: We can use real-life advertising by informing people about the game and advising them to play it as it has its educational effect.