

**A REPORT**

**ON**

**Website gamification: Coding a game in unity game engine to increase user participation on a business website**

**BY**

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Abstract: This report gives details about my internship at Sentient Labs, Dubai. I worked along with three other students from my college to develop a game for the website of the company to increase the engagement of users. We are almost done with the game development as only a few days of the internship are left. We built a prototype then used the concepts and the algorithms we built for the prototype to make the final version of the game. I learnt about working in Unity and game development in general. This internship gave a really good opportunity to learn and apply the skills I have studied in the previous years. I have improved my coding skills and communications. These two months have been really engaging and useful for my growth.



Signature of the Student

Date: 01-August-2020

Signature of PS Faculty

Date: 01-August-2020

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## **Introduction**

### **About the company**

I am doing my internship at Sentient Labs, Dubai. It was founded in January, 2019. The CEO and founder of the company is Mr. Anshul Singhal under whom I am working.

It is a company that provides environmental services. Their main product is the agile unmanned electric S-Bot that enables cleaning agencies to strategically manage waste leakage at the source by retrieving floating macro waste from congested areas in busy waterways such as marinas, creeks, ports and canals.

They also provide other products like bot docking, charging, and trash offloading capabilities to provide an end to end solution for an optimized operational experience for their heavy users.

They also have a subscription- based cloud platform that provides users with real-time teleoperation of the products from their homes. The platform also includes fleet and resource management, for a better experience. For lighter usage, they also provide RC based robots.

Their data analytics platform helps organizations better understand the health of their local environment by analyzing various kinds of data recorded by their sensors on board. They are working on developing technology that would offer fully autonomous solutions in the future.

The company focuses on helping keep the environment around us clean and believes in collaboration rather than competition.

The company has a small number of employees and takes in interns from our college regularly, some seniors from BPDC are also currently doing their internship at Sentient Labs.

They also have a sister company which was founded in December, 2019. The company is called Sentient Systems. The main products of the company are the ROSbot 2.0 and ROSbot 2.0 Pro which are autonomous mobile robots developed by Husarion, the partner company to Sentient Systems. The ROSbot 2.0 is designed for students to learn programming for autonomous vehicles, reinforced with a development platform, a Web User Interface, manuals, a simulation model and more. The ROSbot 2.0 Pro is the advanced version of the previous product and is more heavy duty with a more powerful processor and better accessories. It is designed for performing special tasks which require a lot of processing power such as complicated image processing.

Husarion is a company specialized in robotics. It was founded in 2013 by a group of friends in Krakow, Poland.

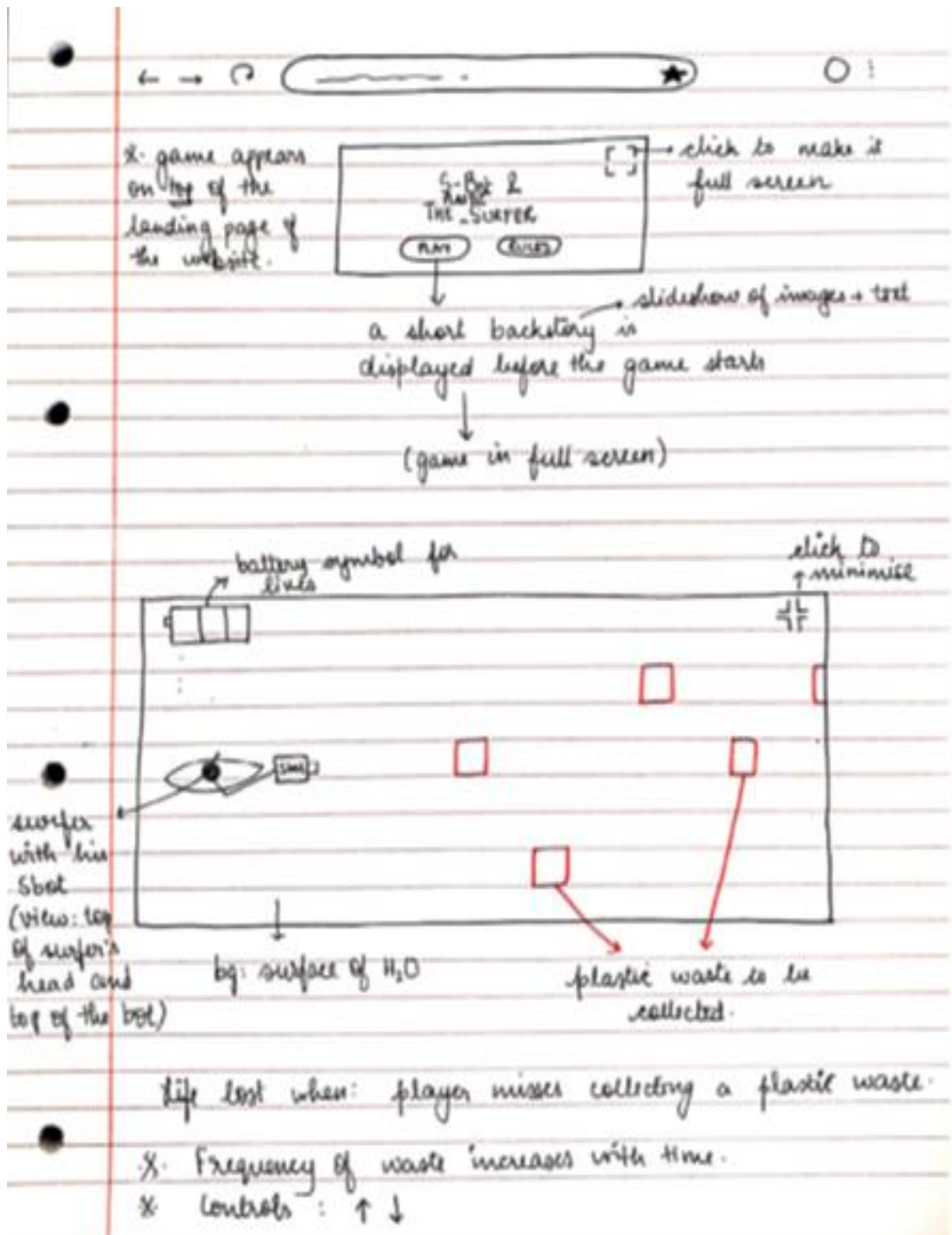
The products are very well-developed and advanced and what makes the products worthy are the accessories that are provided with them, which include a dedicated development platform, simulation models and a wide range of tutorials and manuals. This makes it very easy to use and write code for the robots and the learning experience is enhanced. They have a cloud system called Husarion Cloud which allows the users to manage their robots remotely over the internet and offline tools are also available.



## **My responsibilities**

My internship at Sentient Labs, started on the 10<sup>th</sup> of June, 2020. It is a work from home internship because of the quarantine situation due to the corona virus pandemic. We were a group of five students who were placed at Sentient Labs, and then later on five more students joined us. We were divided in two groups of five students each and given different tasks. At the start of the internship we were given small warm up tasks so that Mr. Anshul could get to know us better and decide the field in which he wanted us to work. The tasks included writing documents about ourselves, our strengths and weaknesses, what career aspirations we have, what we aim to learn from this internship and the fields of our interest. Then the second task was to study about their sister company Sentient Systems, the products they offer and to come up with ways to market their products in the Middle East and Africa region. After that we were given the main task which was a team task, we were told to come up with the idea for a game that would be simple to understand, fun to play and very educational about the concept of plastic pollution in water bodies. This game was to be developed for their business website to make the user more engaged and increase their interest. So our team came up with an idea which Mr. Anshul really liked and considered as a potential candidate. He told us to come up with the second version of the game and wanted us to make some changes. He wanted the game to be from a birds eye view like the Dubai creek. The game was to be made for the landing page of the website. He wanted us to work like a team and come up with a team plan with a high level project plan with time and task owners to convey the association of individual skill sets and work load distribution. We came up with a new concept including all the details sir wanted.

That was the final version and after that four of us were assigned to work on the game development as team. We divided work into two parts, designing of the game and coding of the game. So two of us took the coding part and two took the designing part. I took the coding part along with Natasha, while Yashika and Kripa started their work on the designing of the game. Right now my job is to test the game after adding different features and testing them out for maximum optimization. Every day I set new tasks for myself and try to complete them. The team keeps updating me and giving me their point of views on what is better for the user experience and then I try to incorporate them into the game.



(Figure 1: rough work of the final version of our game)

## **The prototype**

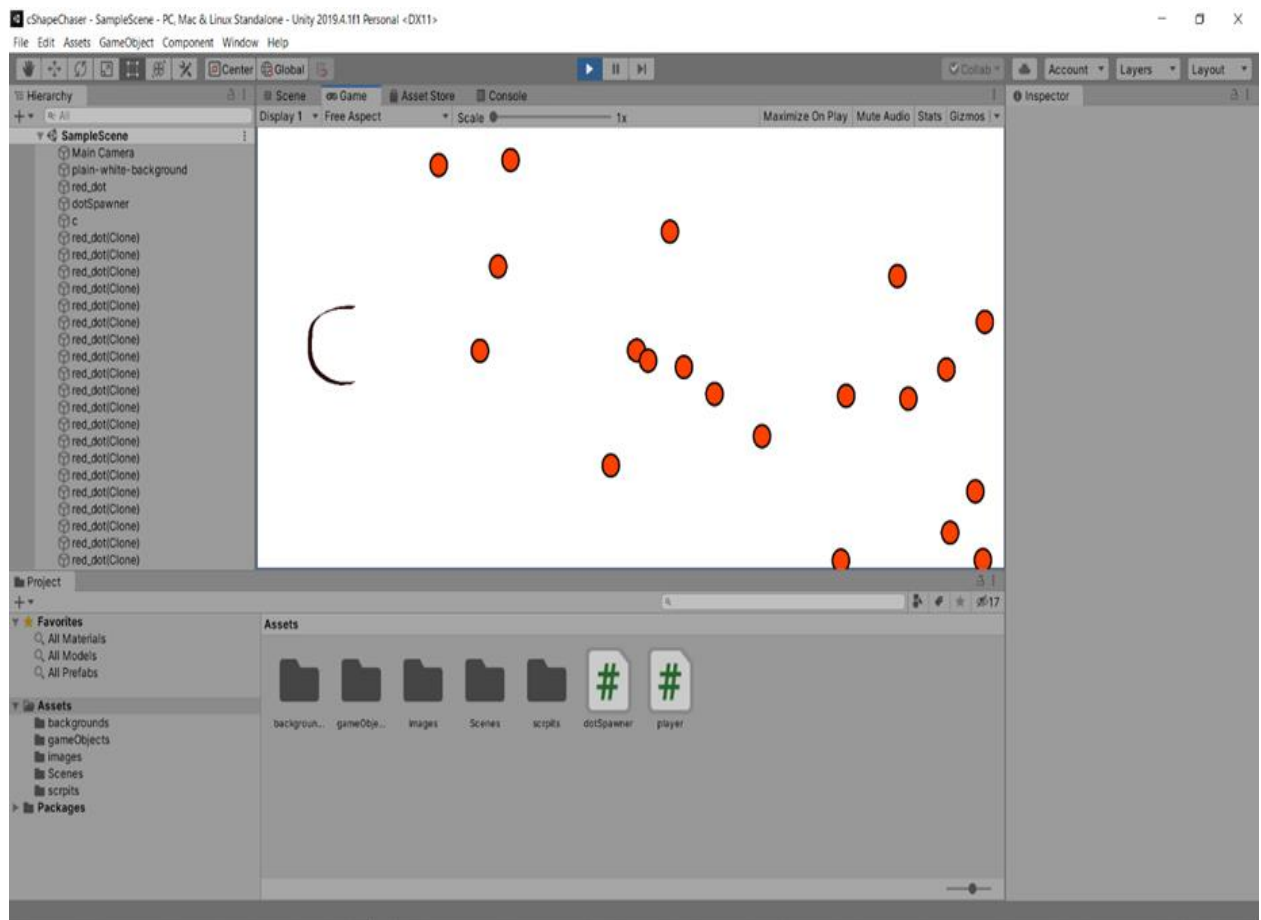
### **What I learnt**

We were told to choose a path to design the initial simple web-based game as a kick-off. We started the ground work upon which we will build the concept. We were told by Mr. Anshul to start with some creative and code work by making a simple game in which a C shaped object will try to collect randomly placed dots on a blank background. All of us in the team had no experience in game development, this was all for the first time for us. So, we needed to decide a platform to develop the game on. There are a lot of easy to use platforms available, so went for the Unity game engine. As the game we are developing is a two dimensional game, Unity is the best platform for that. I have never worked with Unity before, but it uses C# programming language which I had learnt in 12<sup>th</sup> class. Unity is a widely used software for game development and a lot of popular games have been developed on it. It is a cross-platform game engine, which means that we can develop games for operating systems and devices including computers and mobiles. It can be used to make two dimensional as well as very advanced three dimensional games. You can code the games in many languages including C#, the primary language, JavaScript and Boo. It is very easy to learn for beginners and start game development. I started to learn Unity through YouTube tutorials and online free websites. The prototype which we were to develop was a simple two dimensional game, so I started to learn concepts about 2-D game development which included creating environments, player movement, coding using the UnityEngine library which is available for C# language. I started coding in the Visual Studio Code software because it is very user-friendly and easy to use. In Unity, we just need to create scenes for our games and place all the different game objects we require and then apply C# scripts to them for their behavior. My main source of learning was YouTube as it is free and full of information on all concepts of this software. First of all I learnt how to work with sprites, which are 2-D game objects in Unity used for characters, props and other elements. You can learn a lot from just watching a 10 minutes tutorial and apply it at the same time yourself for enhanced understanding. Coding in Unity is fairly simple all the functions are included in the library already you just need to learn how to apply them. The prototype we were building included having collisions between the C shaped object and the randomly placed dots, so next I learnt about collisions in Unity. It was a simple concept as you just need to attach a collider to the object which you want to collide and then add the code for it in the script. There are various colliders you can choose from like box collider, circle collider and capsule collider. I learnt how to code for character movement from a free online website, the concept was easy and just included a few basic codes for the movement from the birds eye view using arrow keys as the input. By then, I had learned a lot about developing 2-D games in Unity and was comfortable with it.

## How I applied it

After learning all the concepts required to build the game required we came up with the first version of it. It included a C shaped object which can be controlled by arrow keys and can move in any direction, then there were red dots randomly placed which were stationary. The game was simple, the user has to move the C shaped object to collect all the red dots to complete the game.

After making the first version, we thought to change it a bit to make it work somewhat like how our main game would look like. So, we came up with the second version of our prototype which was the final version. I had to learn about some more concepts of Unity for it but they were simple like the other concepts which I had learnt. In this version, we made the C shaped object to just move in the vertical directions ( up and down) using arrow keys, and red dots kept on moving to left side, so it appears as if the object is moving forward and the dots are stationary. We incorporated the concept of respawning the dots if they move out of the screen or if the C shaped object collides with any of the dots. We also included a finish line in the game after which the total score is displayed. I learned about working with multiple scenes and how to connect them. So, we had a main menu scene which takes us to the main game scene and then the game over scene. Game development is very interesting and engaging for me as I play games a lot. It also includes logical and mathematical concepts which is the area of my interest. Logical coding is what I do best, understanding the physics and mathematics behind the game, how the character will move, what will happen on shooting a projectile, all these concepts are very exciting and I am enjoying learning them.



(Figure 2: First version of the prototype)

## **The main game**

### **Game idea**

After developing the prototype we had to start the work on the main game. We had something in mind as of how it will look and how it will play out but we needed to consult with the company team first. So, we had a meeting with all the company employers and Anshul sir. We discussed the whole game and decided on the important assets of the game to start the work. It is a very simple and engaging game. There is just a player who can move up and down by using arrows keys or the 'W' and 'S' keys. The aim of the game is to collect the plastic bottles and plastic bags from the ocean as the player surfs ahead. There are also angry fishes which are the enemies and bumping into them makes the user lose one life. The game till now seemed to be very simple., so we decided to add in some power-ups to make it interesting. We came up with three different power-ups which included the battery, dumpster and vacuum power-up. The main idea behind this game was to increase the user participation on the company's website. Right now there are already two games on their website. The purpose of this game is to make the users more aware about the plastic pollution in the water bodies. We all know how much the pollution has increased and we are the people who are doing it. Therefore, we are the people who can stop it. If everyone starts to think about the future generations to come and the way we are destroying this earth and start to do something about it to preserve what is left of the nature, we could really save our world. Sentient labs has taken up the task to clean the water bodies and make people aware about it. And by making this game if at least some people understand what is the right thing to do then this whole idea will be a success.

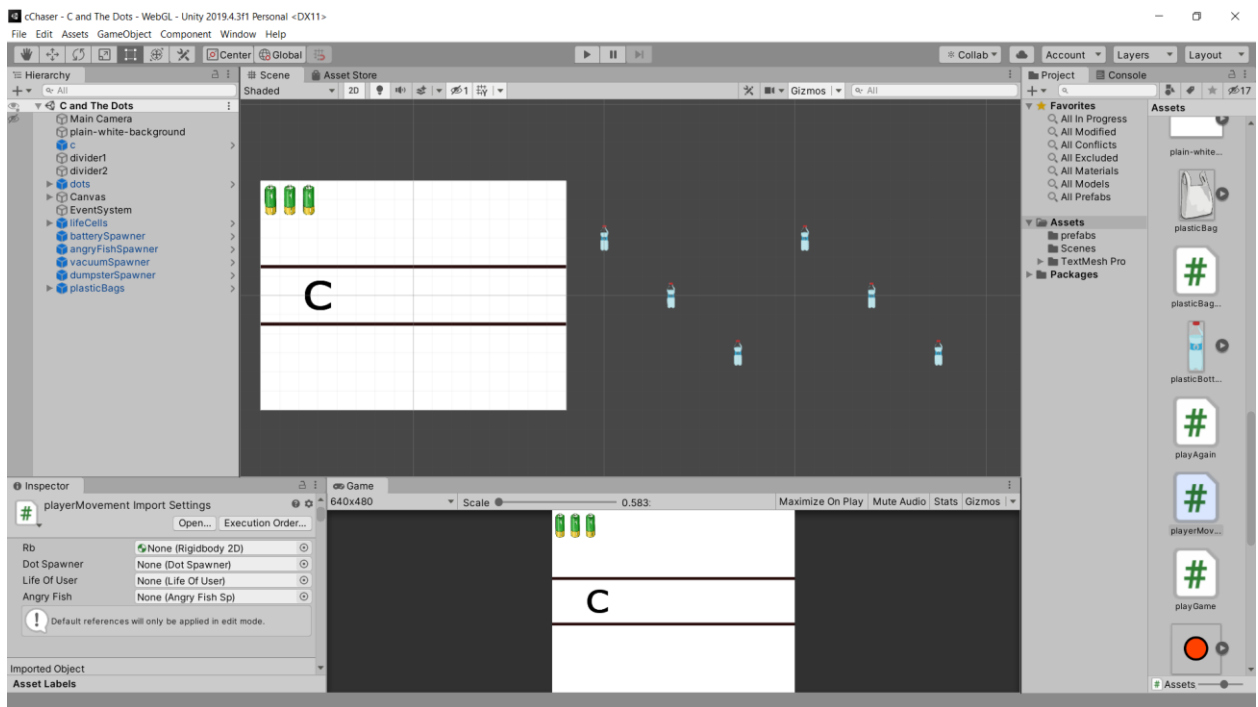
## Game design

I am on the coding team along with Natasha while Yashika and Kripa are on the designing team. They are still in the process of completing the final designs of the game. They are using software's like GIMP to make the assets. My job has been to code using C# in unity and to test out the game. The design which I had made for the prototype is the one which started my main game work on. I included the 3 lane concept and used the C shaped object as the main object for the game. Then I made the battery system for the life of the user which had three cells indicating the three lives. The dots which I had used in the prototype were replaced by plastic bottles. I added the battery power-up and the dumpster power-up. We were going to add the vacuum power-up but there were some issues with it, so we discussed with the company team and decided to scrape off that idea for now and keep it for last if we had time left as only a week is left for the internship to end.

I am not that much interested in the designing side of things but I had to take samples and use them till the design team were done with their final designs. Just for the testing purpose and to get a feel of the game I took assets from google images and used them as a substitute. The company wants us to give a modern look to the game. We will also add some music to play in the background for a better experience.



(Figure 3: sample game assets)



(Figure 4: Test version of the final game)



## Employer details

Before starting the work on the main game. Mr. Anshul introduced us to all the other employers of the company. We met with four different people from the company who were going to help us develop this game by giving us feedback and helping us out wherever we were stuck maybe it be the designing of the game or some errors in the code for the game.

We met with Farhan, Mohammed Suhail, Akshan Mehta and Gowtham Raj. All of them are BITSians. In fact all the employees of the company are BITSians.

Suhail and Gowtham have really helped us a lot in the game development. The team is really friendly and helpful. They clear all our doubts and guide us whenever needed. Mr. Anshul has been a constant support and a great mentor. Working with him and all others has been a wonderful time at Sentient Labs. At first I thought I would just improve my coding skills but now I have actually grown as a person in whole. They have helped me with my teamworking skills, speaking skills, being regular at work, setting daily goals and a lot more. It was my first time doing game development so I was a little slow because I had to learn everything from the beginning, the team has really been patient and have let me do stuff at my pace. Overall the experience with the team has been fun and learning. I am grateful to everyone I worked with from the company.

## Software used for coding

The software I chose for coding the game was Visual Studio Code. I had not coded in C# script for a long time as I had done it in my 12<sup>th</sup> grade. After in 1<sup>st</sup> year of college we learnt C language but we used to use the telnet for coding. Mostly I code in JavaScript so for that I use JetBrains. So I needed to find a good platform for C# coding which is fast and has a lot of accessibility. I had used Visual Studio Code before for coding in python language and I found it pretty easy to use and execute. So I decided to go ahead with it for this project. It has a lot of features including support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git, etc.. The main feature which has been very helpful to me was the intellisense for unity which is developed by unity itself. It can be downloaded from extensions page in Visual Studio Code itself. I was new to unity so I did not know the function names and library names which are used so intellisense was a big help. Another useful feature is the peek feature which shows you a link to the object browser for symbols that do not have a definition metadata. VS Code is very light-weight and super-fast. It has a lot of customization features which you can easily change as per the project you are handling.

## **Game details**

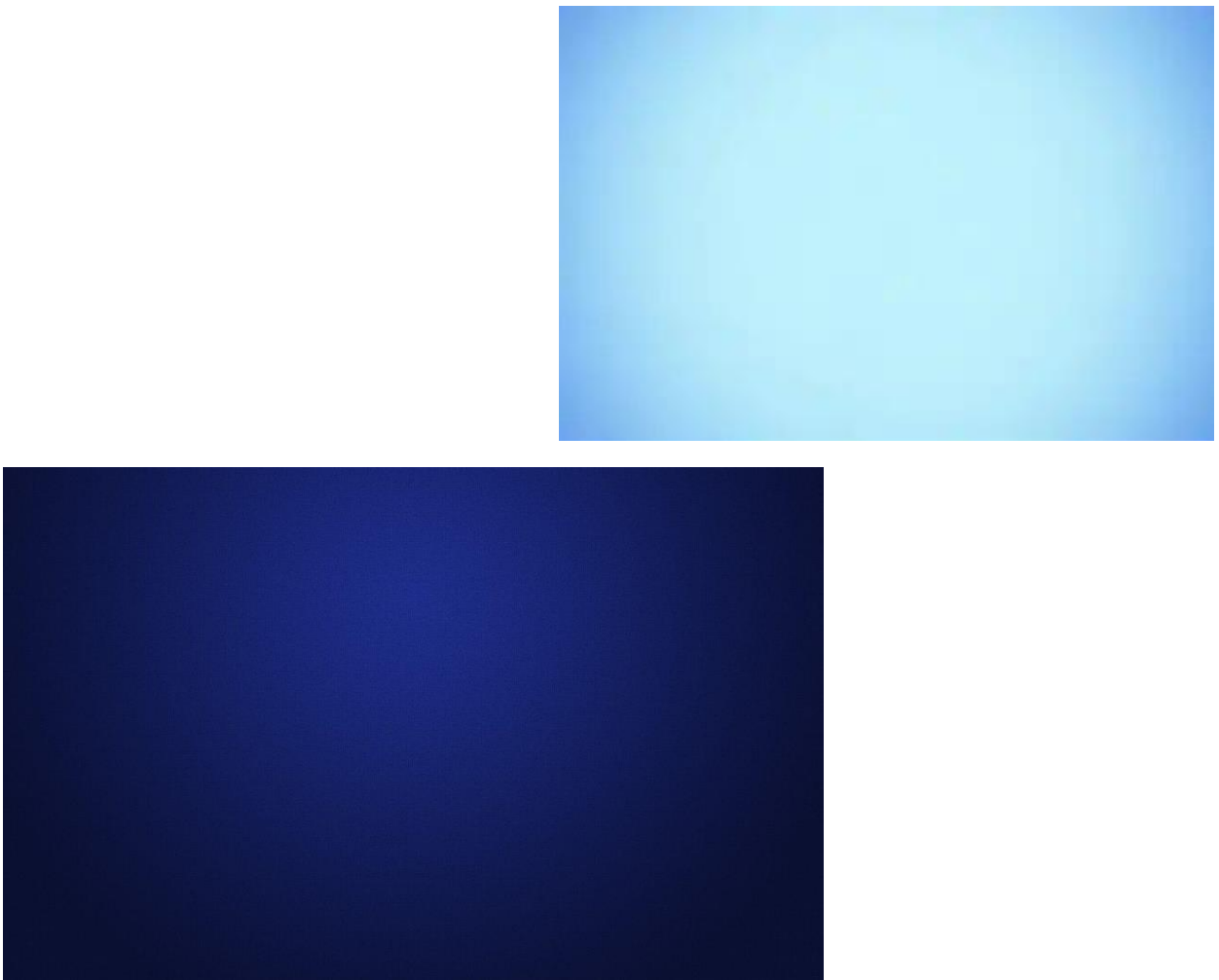
### **Features**

### **Setting of the game**

We wanted to have a storyline for our game as the users will be more connected to the game while playing if first they are told the background of the game. Our storyline was a simple one. There is a guy who is a surfer and is not able to surf properly these days as there is a lot plastic waste in the water bodies. So he decides to take up the task onto himself to clean the water bodies. This was a thing we wanted to add in the story so that the users understand that if we want to clean our environment then we need to start with ourselves first. Then in the story the guy comes across the company Sentient Labs and finds out that the company is the perfect place for him to begin his journey of cleaning the water bodies. He takes the company's product the S-bot with him and starts to clean the water bodies on his surfboard. This was the complete story which will be shown to the users as soon as they click the play button. Now, my job was to code for the same. It was fairly simple all I had to was to learn about scene management in unity. So in unity you can have different scenes in your game like a main menu, a rules scene, the main game scene, the game over scene. You can have as many as you want. So, after the main menu scene I added the story scene which loads after the user presses the play button on the main menu scene. For this I had to learn the concepts about `currentScene`, `buildIndex`, and `loadScene` features which are included in the `UnityEngine` library provided with C# in Visual Studio.

Next asset of our game was the background. So we decided to have changing backgrounds as time progresses indicating that the plastic wastes in the water bodies and increasing day by day. So we decided to have three different backgrounds. The basic background of the game is a water body in which the player is surfing and collecting the

waste materials. The three backgrounds were light blue, then blue and then dark blue which will indicate the amount of waste. Implementing the backgrounds was not that difficult. I put all the different backgrounds in an array of game objects then coded to change the backgrounds as time progresses. I used the concept of setActive(true) and setActive(false) to make the backgrounds visible and disappear accordingly. setActive lets you make all the properties of a game object active or inactive. I added the same functionality to the dumpster power-up as it lets you decrease the speed of the game.



(Figure 5: backgrounds used for testing)

## The main player

The main player of the game will be the depiction of the S-bot. For testing purposes, I used the C shaped object from the prototype of the game as the main player. The important part was the movement of the player. We decided to have the three lane concept so the user can move through them. To incorporate this concept I simple took the input from the keys and then updated the position of the player. After testing it a few times, I found that to be very blocky meaning that the transition was not looking smooth between different positions. So I used a different function for the movement which was the `Vector2.MoveTowards` function which lets you to move objects between two locations with a certain speed. The main player also has a `OnTriggerEnter2D` function which is activated whenever the player collects an object or bumps with an angry fish. All the changes which happen take place inside this function. The player cannot move horizontally only vertically is allowed.



(Figure 6: Player used for testing)

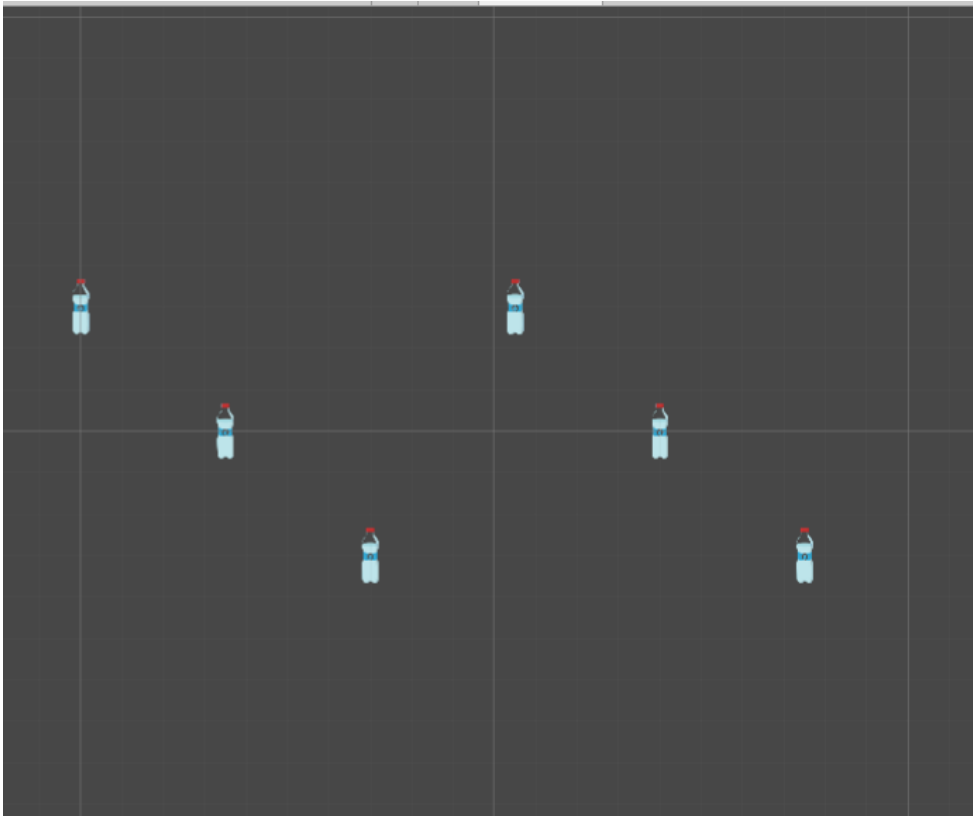
## **Objects and obstacles**

### **Bottles**

The main objective of the game is to collect plastic waste. One of the wastes are the plastic bottles. Collecting the plastic bottles will give the user five points. If the user fails to collect a bottle then two points are deducted from the total score. Implementing the bottles was easy as I had already done the ground work for it while making the prototype. So the dots which I had used in the prototype have basically become the bottles. I just changed the sprites of the dots to the plastic bottles. So the all the bottles are in an array to which their behavior script is attached. The script is to control their speed, their movement, their respawning. For the respawning feature I took the left bound of the screen and on every frame I am checking if any of the dots have crossed the bound and if they have then they are respawned on the right hand side and continue their movement again. For this I had to come up with a simple algorithm which I perfected after testing it a number of times.

After I had added all the assets to the game I played it a couple of times and saw that the bottles were overlapping with the other objects. I had some difficulty figuring out how to stop the overlapping but at the end I did it. I simply put another collider on each individual bottle and then made another script and added it to every bottle rather than the array of bottles. So, the script simply checks if the new position of the bottle collides with any of the other objects then the bottle gets a new position which is not overlapping.

The bottles are a sprite animation created using GIMP by the design team. The speed of the bottles keeps increasing gradually.



(Figure 7: Plastic bottles used for testing)

## Objects and obstacles

### Bags

The second asset of the objects are the plastic bags. The plastic have seven points if you collect them and you lose two points if you fail to collect them. In reality the plastic bags in the water bodies are more harmful than the plastic bottles, that is why we decided to keep worth more points. And as the bags have more points their frequency is a little less than the plastic bottles. For the plastic bags I had to come up with a new idea for spawning them and respawning them as there is only one bag which keeps on respawning. So first I simply made a plastic bag game object and gave it a speed to move towards the main player. For this I used the concept of transform.Translate which lets you move a certain game object in any direction you want with a given speed. So I gave the bag the same speed as the bottles and added the script to it. Then I used the same concept which I developed for the movement of the bottles and added it to the bags. I took the left bound of the screen and compared it to the position of the bag and if the bag went above the bound then made it to respawn. I added a collider to the bag so when the player collects it, the bag gets respawned and points are added to the total score.



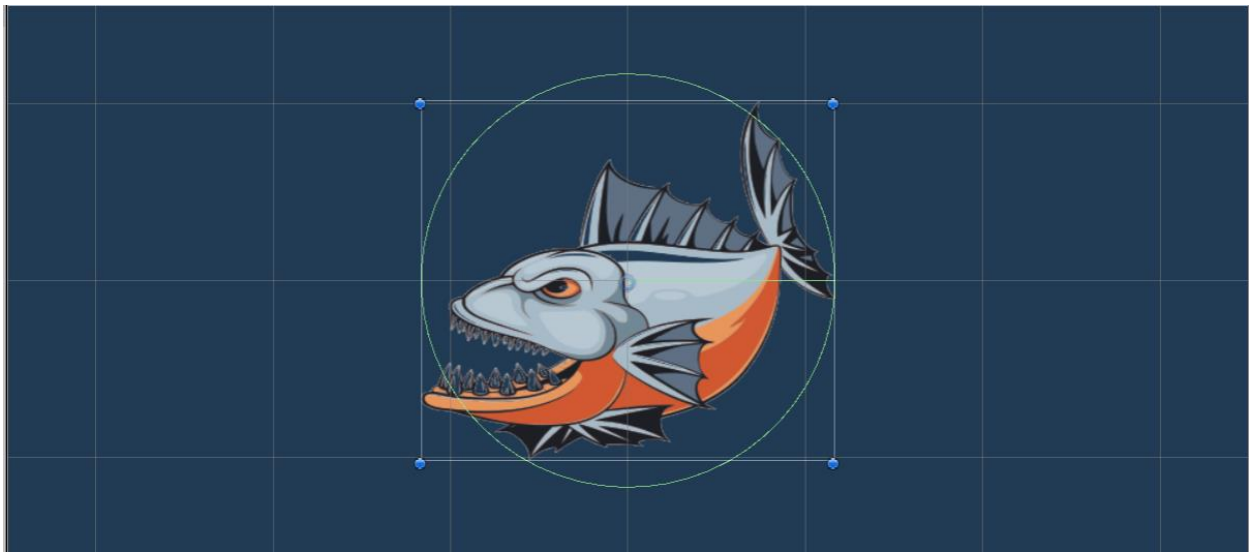
(Figure 8: Bag used for testing)



## **Objects and obstacles**

### **Angry fishes**

We needed to add an obstacle in the game which the player will need to avoid otherwise there would be no point of playing it. So, in reality there are fishes in the water bodies and we thought that maybe some of the violent and dangerous fishes could act like an obstacle signifying that when you go in the water bodies you may encounter some of them. So for testing purposes I added some piranhas as the obstacle. Now for the angry fishes I had to come up with another idea for spawning them. We have three lanes in the game which the user can maneuver through. So, first I took a simple piranha game object and gave it a speed towards the player using the transform.Translate function and saved it as a prefab for using later. A prefab simply allows you to store all the configurations and changes you have made to a game object so that it can be used later and you do not have to do everything again. Then I made patterns for the fishes to spawn in. In one pattern I had two fishes in the top and middle lane, then in the second I had the fishes in the middle and bottom lane. Like this I made six different patterns and saved them all as prefabs. Then I made another empty game object and added a behavior script to it. In which I used some concepts which I learned through online tutorials for spawning with time delay. As you do not want all the fishes to come at the same time there has to be delay. I added all the patterns as an array to the spawner game object and placed it at an appropriate distance. Each pattern had a script attached for them to spawn the fishes in the particular position and then in the spawner script I randomly chose the pattern to be spawned. I added colliders to the fishes and when the player bumps into them they lose one life cell. The speed of the angry fishes were same as the plastic bottles. I gave the game to the team for testing it out and give their feedback which helped me to find any bugs or adjustments to the fishes. The frequency of the fishes also increases with time to make it a little more challenging to play.



(Figure 9: fish used for testing)

## Objects and obstacles

### Waste clump

Originally we had not planned to add the waste clump but the company team said to include a bonus asset for gaining more points. So we decided to add a clump of plastic waste which will spawn every now and then and will be worth 10 points. For this asset I used the same concepts which I used for the plastic bags. The frequency of the clump is even less than the bags as it is just a bonus. I used the same methods for the spawning and respawning of the clump and gave it a collider for when the player collects it.



(Figure 10: waste clump used for testing)

## Life of the user

We tried to make our game as an endless runner which means that for the game to end there needed to be a quantity which would decrease with time. So we thought about the life concept and came up with the idea of a battery as the health bar as the S-bot is a robot. We decided to give three lives to the user, so we implemented using three cells inside a battery. Now for the draining of the battery we had two concept first was that after a certain interval of time the battery will start draining and lose one cell in each interval. The second and obvious one was when the player collides with an angry fish, they lose one life cell.

I used simple battery game objects as the three life cells and put them into an array to which I applied the behavior script. Draining the battery after time intervals was easy to implement. And I used the scene management concept to display the game over scene when the user loses all their life cells. I used the concept of setActive to make the cells disappear because at first I was using the Destroy function which was a logical error as after destroying you cannot access that game object again. So setActive was a better choice because the user can also regain health by collecting the battery powerup.



(Figure 11: how the health bar looks in testing)

## **Speed of the game**

The speed of the game is very important part because it should be optimized for all types of users. The speed of the game is something which was developed and perfected after a lot of testing the game on different speeds. At first I was using a concept was the increase of the speed which was not very good and it made the objects stutter in between transitions to higher speeds. And the speed would shoot up a lot at a certain stage. So I researched a little and found a better way to do it. By gradually increasing the speed of the objects on every individual frame. The speed can be controlled by the script which is attached to the array of plastic bottles. All other objects use the same speed as in that script. I had to make some changes to it after the addition of the dumpster power-up as it lets you decrease the speed of the game to make it easier.

## Power-ups

### Battery

We have two power-ups in our game, the first one is the battery power-up which lets you regain one life cell. It starts spawning after you have lost one of your life cells. The frequency is relatively low. For the spawning of the battery I used a timed spawner which spawns with a delay provided to it. First I took a battery game object and gave it a speed towards the user using transform.Translate function and made it into a prefab. Then using the prefabs I made patterns for the spawning of the battery. I made three different patterns one for each lane and saved them all as prefabs. Then I made a battery spawner game object and added all the patterns to it as an array. The behavior script was attached to the spawner game object. By using the timed spawner function I made, the battery gets spawned at random locations. The battery stops spawning after the game reaches its maximum speed. But then if the player collects the dumpster power-up, then again the battery power-up starts spawning if the player loses a life cell.



(Figure 12: battery used for testing)

## Power-ups

### Dumpster

The second power-up is the dumpster power-up. This is the most useful power-up as it gives you the option to regain health and slow down the speed of the game. This is also related to real life as you use a dumpster to empty all the waste which you have collected and then go on to collect more waste. The dumpster starts to spawn after a long time when the game is in its highest speed and it gets difficult to dodge the fishes. For implementing the dumpster first I took a dumpster game object and gave a speed towards the player and then made it into a prefab. I used the prefab to make three different patterns for the spawning then added those patterns to the dumpster spawner game object. Then I used the timed spawner function to spawn the dumpster on random locations. I added a collider to the dumpster which activates a function when the player collides with the dumpster. In this function the speed gets reset and the background changes to the previous lighter one. After the reset the speed increases gradually again to a maximum value. The dumpster will spawn again after some time.



(Figure 13: dumpster used for testing)

## Deployment and testing

At first I when I was developing the game in unity I was testing it myself in unity only, later the team asked me to share the game with them so that they could also test it and give me their feedback on it to improve the game.

For this I found a free website which lets you to host your unity games online which is available to everyone and easily accessible. The website is simmer.io. Games created in unity can be converted to a WebGL for hosting purposes. WebGL is a JavaScript API which is used for rendering interactive 2D and 3D graphics with compatible browsers without any plug-ins. So, I simply added all my scenes to the game and then built a WebGL for it. I used that WebGL to host my game on simmer.io. Then I shared the link to the game with the whole team and then they could all play it. This was just for testing purposes. The main task is to host it on the website which is a little difficult as the website is built using a third-party website maker. After getting the feedback from the team all I had to do was to make the necessary changes in the game, build a WebGL and then host it again. Unity WebGL are not yet compatible with mobile devices, so this game is just for the desktop website. Simmer.io was really a helpful platform for us as it made it very easy for finding out errors and bugs in the code and design of the game.



## **My experience**

I have now reached the end of my internship at Sentient Labs, and it has been a knowledgeable and fun experience. Mr. Anshul is a very helpful and wise mentor. I really liked his approach at the beginning of the internship to decide what work should be assigned to whom. The tasks he made us do, gave me a chance to gaze into my future and made me think of what I really want to do in my career and what I really like to do. He always keeps in touch with all the members and is always ready to clear any of our doubts. Working at this company has given me a sense of purpose and made me regular in my daily routine. Although we were not able to physically go to work every day and get the experience to work in an office environment, I was able to develop that at my home, and get the most out of this opportunity. I had never worked in a team before on a dedicated project, which I got to do during this internship which helped me learn how to operate and work in collaboration with others. I learnt to share my ideas openly and build highly detailed team plans. All I wanted was to learn something from this internship and I really have learnt a lot of things. I have just recently started coding and to get an opportunity like this to improve my skills has helped to increase my potential tremendously. I learned about a whole new field of work, game development, which I really liked and would like to develop more games in the future after getting even better at it. I learned about a whole new software in which I had no prior experience. This internship has been very good for me in every aspect, from technical knowledge to how a business works. I got to learn a little bit about marketing a product across a region, although I am not interested in that field. Programming is the main part which I wanted to improve the most and I am working on it, so that is the best part about this internship.

## Conclusion

We have come to the end of our internship and overall working at Sentient Labs has been a huge success. A lot of work has been done and I have gained a lot of knowledge about game development and working with Unity game engine. I could not have made a better use of this lockdown than doing an internship at an accredited company. I think that I was able to contribute to the company by working on the project. I look forward to seeing the game on the company's website. I have developed a lot skills till now and will work on making use of these skills in the future on projects of my own. Working with Mr. Anshul has given me insights on the working of a company and how to handle situations. My love for coding has increased tenfold and I hope to keep acquiring new skills to better myself for the future. I tried to do my work religiously and complete everything on time. There has been a lot of stuff to take away from this internship but mostly what I will take away is the sense of completing your goals and working to achieve success. A big thank you to my team members and all the members of the company team for their constant support and guidance for the completion of this project. I hope to work with them again in the future.

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