

Game Design Document

Games Development Process

PG-Gunerhanal, Burak

Game Design Document

Table of Contents

Section 1: Overview	3
Design Summary	3
USP List	3
Game Objective	4
Visual Style	4
Target Audience	5
Target Platforms	5
Expected Age Rating	5
Section 2: Gameplay	5
Typical Gameplay Example	5
Game Modes	6
Key Gameplay Mechanics	6
AI Description	7
Difficulty Systems	7
Controls (on All Platforms)	7
Camera Descriptions	8
Interface/GUI	8
Audio/Music	9
Multiplayer/Online	9
Front End	9
Saving/Loading System	10
Section 3: Game Details	10
Back Story & Game Storyline	10
Mission List/Geography	10
Key Character Descriptions	10
Key Vehicle/Objects	11
Section 4: Project Issues / Risk	11
FMV/Cut Scene Technology	11
Licences/Product Placement	11
Languages/Localization	12
Schedule Overview	12
Team & Feasibility	12
Key Project Risks	12
Key Design Risks	13
Section 5: Summary	13
Summary	13
References	13

Section 1: Overview

Design Summary

The game is called **Yummy Island** which is a 3D environment where a character is in search of a delicious food to survive. The environment will spawn foods in random positions in the scene and the player will have to rush from one spot to another, to retrieve the food and gain **life** (will be discussed in detail later).

Enemies along the way will try to prevent the hero from collecting the food which will add more challenge to our hero's survival adventure.

USP List

Hunger Bar

This is a game mechanic that will continuously meter down by a given time (game difficulty will determine the exact time) which is the representation of our hero's hunger. Players will have to avoid this bar to hit 0 since it will be a game over and the hero will die out of hunger. The hunger bar will move upwards when a food is collected. The following picture will enlighten the idea of Hunger Bar:

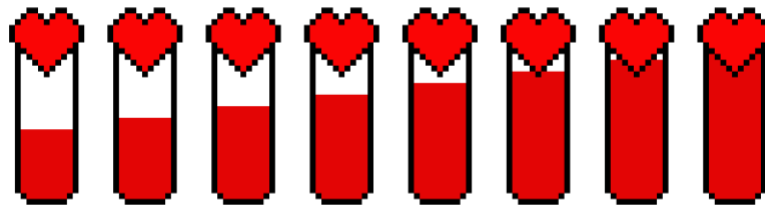


Figure 1 - Hunger Bar

Food Collectables

These will be 3d models where it will represent different types of food that will award the hero some time which will be reflected in the **Hunger Bar** above. Depending on the collected food, the bar above will increase. See the following table for different types of collectables and their effects on the hero:

Collectable	Effect
<i>Lamb Kebab</i>	<i>Reduce hunger by 5 seconds</i>
<i>Chicken Kebab</i>	<i>Reduce hunger by 5 seconds</i>
<i>Shish Kebab</i>	<i>Reduce hunger by 4 seconds</i>
<i>Lahmacun</i>	<i>Reduce hunger by 4 seconds</i>
<i>Fries</i>	<i>Reduce hunger by 3 seconds</i>
<i>Drink</i>	<i>Reduce hunger by 3 seconds</i>

Hero's Vision

The hero's vision is tied to his appetite so in parallel to the Hunger Bar above, hero's sight will drop as the hunger bar drops down. For this reason, the lights will die out as the hero gets hungrier. Collecting a food in the scene will also restore the light in the scene, making everything bright again. Note that the light will reduce to %50 lowest so players will still have a vision in the scene but not as much as they have when the hero is fully fed. The following chart will help explain the connection between the hunger bar and the light in the scene:

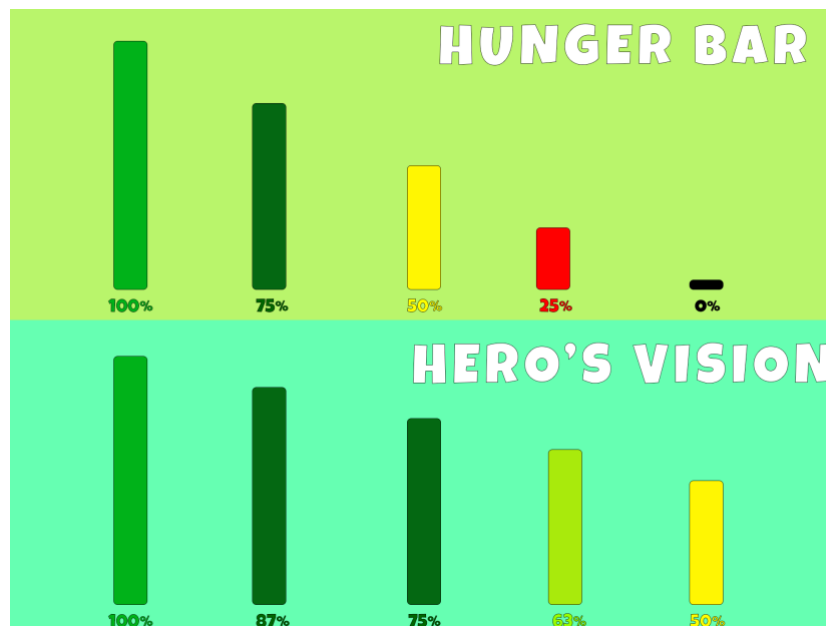


Figure 2 – Correlation of Hero's vision with Hunger Bar

Döner Graphics

The graphics in the game, in other words, the collectables, UI, animation and feel of the game will reflect the branding of the food chain, the local Kebab business.

Game Objective

The following questions will answer the game's objective.

What is the players' key objective in the game?

A players' key objective in the game is to make sure the hero stays alive by constantly retrieving the food collectables and ensuring to avoid enemies who will aim to prevent the hero from collecting the foods on the environment.

What is the goal?

The goal is to keep the hero alive by constantly feeding **him** (male character, discussed in detail under section 3) by collecting food collectables which will increase the health of the hero, keeping the hero alive.

Why should the player care about progressing?

As the players progress in the game, the levels will offer more challenge in terms of difficulty which will offer more engaging gaming experience.

Time factor will have a huge impact in this perspective since each level will have a given time and players will need to successfully keep the player alive until the time runs out. If the hero is alive by the end of the ticks, players will advance to the next level where the time will be longer.

Furthermore, players will be rewarded in game points as they progress in the game. The points could be used to unlock and improve power-ups. This will be discussed in detail under key character description, section 3.

Visual Style

The visual style of the game will be based around the theme of **foods and inns**. Specifically, the environment will benefit from a food places in older times whereas the characters and the graphics (i.e. collectables) will be based around the foods you eat in inns.

What kind of visual style will be used?

The visual style will be **cartoonish** looking graphical assets that will portray the impression of a town in a 3D environment. The game will be based in an inn that is inside of a town and players will have the freedom to move the hero in and outside of the inn where there is an outside seating area that will also have the foods spawn.

Will the game's visual design mirror reality?

Visual design in the game will not mirror reality as the aim of the design is to achieve cartoonish graphics which does not fit with realism.

Will something unique be created in terms of visual design?

Since the general graphics (collectables & hero) will be around the traditional culture of Turkey, perhaps the art work will be around designing these elements which will add some sort of uniqueness to the game.

Target Audience

The target audience of the game will be 7+, suitable for all to play with no gender bias. Given the nature of the game, there are no restrictions to prevent anyone from enjoying the game. Since the game mechanic requires a certain level of hand/eye coordination to be able to jump over obstacles, the younger gamers might not fully perform the required basic actions hence the age rate is 7+.

Target Platforms

The game is set to be published for **mobile** devices and therefore will have to be targeted for mobile platforms such as Google's **Play Store** and Apple's **App Store**. There are over 5 billion mobile phone users in our planet and the markets above are the main source of digital content distribution to these devices. Targeting these markets mean, targeting over 5 billion potential players.

Expected Age Rating

Given the content of the game, it's safe to state that there will not be any explicit images in the game. Although, there will be a battle action which according to the following sources, fall under Everyone 10+. It might be worth to note that there will not be any representation of blood upon attacking. Instead, this will simply be a shake animation to indicate that the enemy or the hero got hurt.

Therefore, the game will be for **everyone 10+**.

Everyone 10+
Content is generally suitable for
ages 10 and up. May contain more
cartoon, fantasy or mild violence,
mild language and/or minimal
suggestive themes.

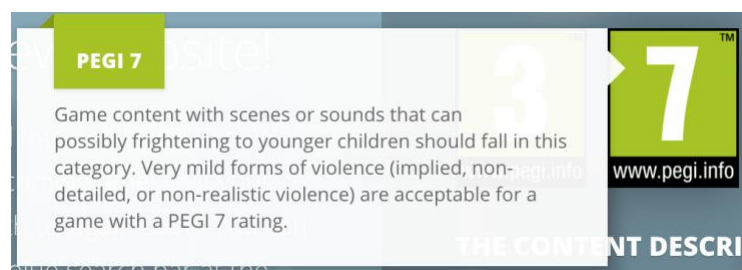


Figure 3 – Age Rating

Section 2: Gameplay

Typical Gameplay Example

Please see the following narrative that will describe the typical five to ten minutes of the game:

*In a world without **Hunger**, our hero will also get his **share**; but only if you can manage to **feed** him his yummy **food**. Please don't let our hero's figure mislead you. He might look skinny but he has an appetite of a **blue whale**. His appetite reduces drastically and as the player, you must ensure that he stays alive by constantly collecting the food around him.*

Once you clear the levels in the given **time**, you will advance to the next levels, but beware of the **user's vision!** As the hero will start to faint if you fail to collect the **food**. This will restore the hero's vision, making things brighter.

Game Modes

There will be 2 different game modes, including; **story** and **online survival**.

Story mode will entail a level based structure where the hero must complete all the levels to finish the game. The story will be discussed further under Section 3 – Game Storyline. The level structure will use a similar approach to the following screenshots:

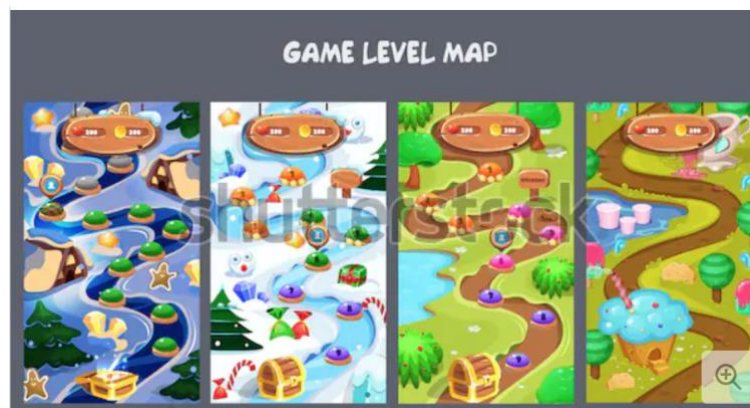


Figure 4 – Level Map

The **online** option will provide an engaging gaming experience that will bring players together through the implementation of network feature. This will be like a **survival mode** that will randomly align players of 2 in the world, where their aim will be to try to stay alive together by beating enemies and at the same time, collecting food to keep themselves from dying of hunger. If one player is knocked down by enemy AI, the remaining hero will have the option to save the injured hero, sacrificing 5 seconds from its health. Of course, player will have the option to play with either their Friends or play with strangers online.

Key Gameplay Mechanics

Since the game will be based around a town with 3D graphics and models, players will have to control the hero using virtual joystick input component. The main movement controller of the game will be the implementation of virtual joystick and a button for attacking.

Attacking button

The button tied to the attacking feature will help players launch attacks towards the faced area with the movement joystick. Players will hold their mobile devices in landscape mode and they will have the virtual joystick on the left bottom of the screen whereas the attack button will be on the bottom right. The virtual joystick at the bottom left will help users select the area of the attack and the attack button will launch attacks to the specified area by the joystick.

Perhaps, the following figure will enlighten the point made above:



Figure 5 – Virtual Joystick

Please note the above screenshot is only used for its screen UI. The game will have a clearer HUD and will not strictly be a FPS hence the camera will follow the hero from a 3rd person view.

AI Description

Players will have to battle enemy AI and therefore there will be a basic intelligence implementation for NPC enemies. The enemies will be given a radius and will start to attack upon detecting the hero in their radius. The enemies will randomly spawn in the world.

There will be different enemy types which will have different intelligence. The following table will detail the logic for each of the enemies that will appear in the game:

Enemy Type	Enemy Logic
Beater	Beater simply beat anyone who is in its attack radius with its bare hands
Trimmer	Trimmer will have a pitchfork and will trim the hero in case the hero is in trimmer's radius
Bomber	Bomber will simply throw poisonous food bombs to the hero, reducing hero's hunger bar further.
Exploder	Exploder will explode itself and harm anyone who is near it's radius.

Difficulty Systems

The **story and online survival modes** will allow players to select the difficulty of the game which will plan the gameplay in the following way:

Difficulty	Explanation
Not that hungry	Will be a super basic gameplay where hero's hunger bar will take 50 seconds to finish and enemy AI will spawn at every 5 seconds
Hungry	Will be a basic gameplay where hero's hunger bar will take 40 seconds to finish and 2 enemy AI will spawn at every 5 seconds
Super Hungry	Will be a challenging gameplay where hero's hunger bar will take 30 seconds to finish and 3 enemy AI will spawn at every 5 seconds
Starving	Will be a super basic gameplay where hero's hunger bar will take 20 seconds to finish and 4 enemy AI will spawn at every 5 seconds



Figure 6 - Difficulty

How will the varying abilities of players be addressed?

As players progress in the game, their progress against enemy AI will be tracked. Every cause of game over session will be analysed and the enemy responsible for characters' unsuccessful experience will be stored. A player vulnerable to a certain enemy type will not see that type of enemy in further levels.

In detail, the enemies spawn randomly in the scene. The AI will filter the spawn of enemies according to the player's game style.

Controls (on All Platforms)

There will be certain player inputs that will allow players to control and launch attacks in the game. The components for these activities will be:

- Virtual joystick character controller input
- Shoot button

- Swipe up for jump
- Swipe left/right to control camera

These components will not only function one action but will include multiple actions and execute them upon user interaction. For instance, while the shoot button will launch attacks, holding down this button will constantly launch attacks whereas virtual joystick input will start to run when one direction is pressed down for more than a second. The screenshot below will demonstrate the input components listed above:



Figure 7 –Virtual Joystick



Figure 8 – Camera Movement

Camera Descriptions

There will be 2 different camera views in the game. These angles will be; **3rd person view** and a **fixed view** that captures everything in the scene from a point at the top of the scene.

3rd Person

This will be a dynamic view of a camera that follows the hero in the game from behind and just a bit above the character so that hero's surroundings are visible to the player. Since this option does not offer visibility to the entire scene and results for possible blind spots for the player, there will be indicators in the game UI which will alert the player to an enemies' existence. The following screenshot is an example of this feature:



Figure 9 –Attack indicator

Please note that this indicator will be white color and will fade away when the enemy is visible in the camera. Players will have the option to untick this feature in the settings menu if they prefer manually looking at their surroundings all the time.

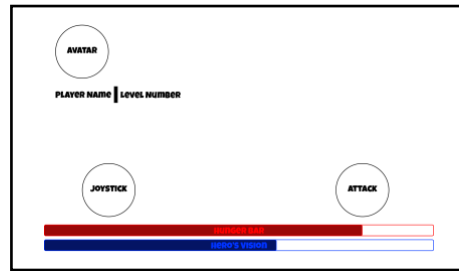
Fixed Top view

This will be a static fixed view of a camera where it sits at the top of the scene and enables player to see all that is happening at the scene.

Interface/GUI

The interface of the game is an important element in the game that will help players see their progress in the game. Following UI components will be displayed to the player's while they are playing the game:

- Hunger Bar & Hero's Vision
- Virtual Joystick
- Attack button
- User profile
 - Avatar
 - Name
 - Level Number



Audio/Music

Sound effects and the music in the game is important to provide the ultimate gaming experience. In the game, each action will have its associated sound effect from collecting/eating the food to attacking the enemies / getting damaged by the enemies.

Given the nature of the game, the soundtrack to play behind the gameplay must be non-distracting but at the same time put the players under a hasty mood so that the player responds quickly to the game.

Multiplayer/Online

As previously stated, the game will have an online survival mode that will allow players to either play with their connections or play with strangers which will use a match-making technology.

Players will be able to see each other's game records since they will have their own username and avatar which will use a database.

Since the game will be available on mobile devices, most gamers have either gaming networks or social media accounts. The game will allow synchronization for these platforms to sync their online friends into the game. For those without gaming network accounts or prefer not to sync their profiles, the game will allow users to sign-up with a username and connect to their friends via search and find in the game.

A CDN will be used to deliver promotional assets for both online players or players who play the story mode. Players will be able to purchase desired graphical assets and use those assets when playing the game.

Front End

The following flowchart details the front-end menu system in the game:

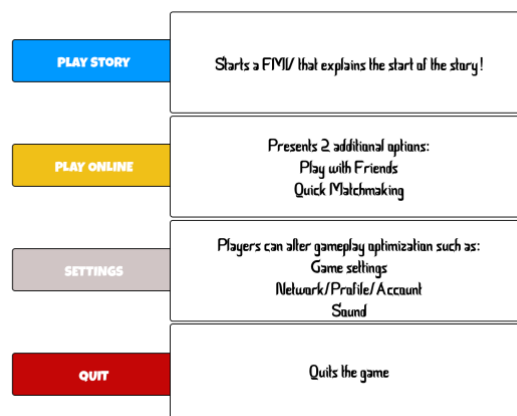


Figure 10 – Menu System

Saving/Loading System

In the **story mode**, there will be levels which will be locked until the previous levels are unlocked. Players will resume their story experience from the previous level where they last unlocked.

As for online mode, since this is a real-life gaming experience, there will not be a save state which is redundant for online gaming. However, in case of network failures, the game will be designed to handle sessions loadings so players can resume their previous game state with a smooth experience.

Section 3: Game Details

Back Story & Game Storyline

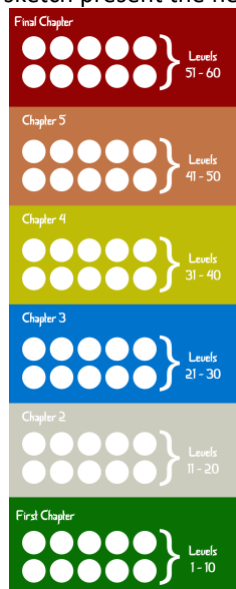
The hero is from a land called the Yummy Island where average appetite for its citizens are a minute. People from this island require food at every minute for which reason they must carry a piece of food with them otherwise they will die!

Our hero, Tummy, has been abducted from his homeland by evil aliens and brought to a different place where the amount of food is not as much as it was in his homeland.

Our hero needs help staying alive until the player clears all the levels in the given time by trying to stay alive and avoid being killed by alien enemies. Once all the levels are cleared, our hero will be able to obtain a ship where he can journey back to his homeland where there is lots of food.

Mission List/Geography

The game will consist of different chapters where each chapter will have 10 levels. Upon starting the story mode, players will see a FMV that will explain the back story of the game. As users progress in the game and complete chapters, players will see different FMV's that will show player's progress and what they need to complete in the next chapter. The following sketch present the hero's journey in the story mode.



Key Character Descriptions

In this section of the document, the key characters' descriptions and interaction diagrams will be displayed:

Tummy, the hero

The main hero, Tummy, has certain power-ups that helps him become invincible for a short period of time. These power-ups can be seen in the following diagram:

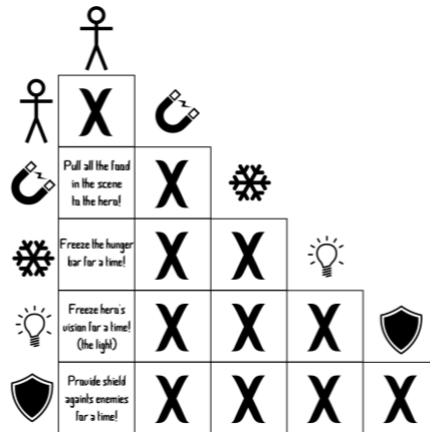


Figure 11 – Power-ups Interaction Diagram

The enemy AI

The enemy AI will have the certain damage on the hero that is shown in the following interaction diagram:

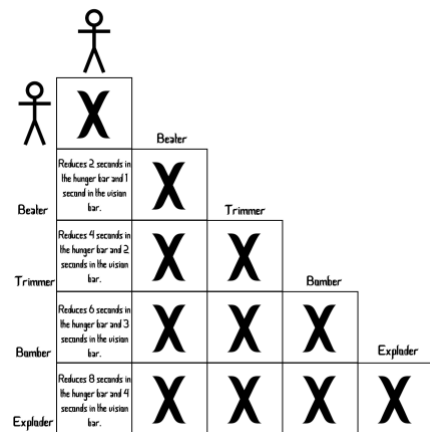


Figure 11 – Enemy AI Interaction Diagram

Key Vehicle/Objects

The game will not have any vehicles in the scene. However, the hero needs a space ship to return to his island and for this reason, each level has a space ship part where it can be crafted into a vehicle. After completion of a level, the player will be rewarded a spaceship part which will adhere to the story of the game and once all the parts are retrieved, in other words, once all the levels are cleared, the hero will have a spaceship of his own by then he will use it to return to his homeland, Yummy Island.

Section 4: Project Issues / Risk

FMV/Cut Scene Technology

Since this is a mobile game, cuts scenes will be produced using an additional video editing / animation software and clips will be exported as video files which then will be placed at the beginnings of chapters in the game. Given the intense effort and resources to produce this work, an external 3rd party will be consulted to do the required work. Once the said clips are ready for use, they will be placed in the game accordingly.

Licences/Product Placement

Since the game will use notable game mechanics, the Open Game License (OGL) will be used to allow modification, copy and redistribution of some of the content for the game.

As for product placement, there will be a lot of areas for this and advertisement in the game.

For starters, the 3D environment is placement friendly where 2D images/textures of products could be applied to models and be visible in the game. For each game over session, there can be watch ads to resume game over state's which will allow the players to resume from their last session by simply watching a video.

Languages/Localization

Localization of the game at the first launch could be difficult to implement. But, depending on the demand for the game in various markets, perhaps the localization could be considered since there are applications that track the traffic of the game for each country.

However, this could not be done by an in-house team and it would simply be easier if an outside party is consulted and asked to do this for the game.

Also, another key factor to note here is the culturalisation of the game for regions where there is continuous demand. This could be achieved by simply using a language that is beyond a simple translation, but a language that addresses a culture with literacy i.e. idioms or expressions as well as the graphics where the hero could wear and traditional dress for a given region.

All the efforts above are worthy if the numbers (downloads/engagement) are promising a financial return.

Schedule Overview

The development of this game will take around 12 weeks where first 2 weeks will be around planning and gathering requirements of the game. Once the planning process is done, the team will move onto implementation of the requirements. At week 6, the game will be in "first playable" state where it will offer the core features of the game.

At week 9, all the features of the game will be completed. In the later weeks, the team will focus on polishing the game by addressing user tests and resolving any potential bugs that could occur in soft launches where the game will not be %100 published to production. This is because the game might not be in a stable state and releasing an unstable build to production could result in bigger problems. Therefore, it will be first released to %25 of the users on the store and depending on the results, it will slowly be released to %100.

Team & Feasibility

The team will be around 11 individuals.

Given the technical complexity of the game, there will be:

- 3 game developers,
- 2 network programmers for online gameplay,
- 2 people in charge of graphic design & 3d modelling,
- 1 person in charge of sound
- 1 game tester
- 1 level designer and
- 1 project manager, **key role**, to oversee each team and connect all the pieces together.

There is a great potential for expansion in the project as the game is published to production.

Key Project Risks

Given the complexity of the game, it will be difficult for new players to adjust themselves to the rules and gameplay in the first experience. Due to this reason, the **churn rate** for the game is possibly going to be high which is a big problem since players can install the game but will not engage after their first experience and uninstall the game, without returning to it.

To tackle this problem, it's critical that the game has a very good user-friendly tutorial for new players that would explain everything to the player without making the tutorial session too boring and resulting in annoyance with the players.

Retention is a key metric for success and problems like churn rate will have to be addressed. Online channels where the game will be released will have to be used efficiently and retrieve user feedback for any possible reasons that would put the player's off towards the game. Once the said feedbacks are retrieved, they will be analysed carefully and the raised issues with the game will have to be addressed accordingly.

Key Design Risks

It's highly unlikely that the design decisions made above and the USP's of the game will create a risk given that the game will use components which are used widely in the gaming industry.

However, for any of the gameplay items that is likely to create inconveniences for the players, for instance, the key gameplay items responding slowly to older devices, technologies for older devices will be researched and implementation of these technologies will be around addressing older devices, creating a better gaming experience for them.

For online survival modes, since not all the players are likely to have a solid network connection, the implementation of the online gameplay will have to be targeted for all the devices. There will be network analysis for older devices which will point to a problem and help to offer some sort of a solution.

These analyses will shed a light to a problem and a solution which will make it easier for the team to tackle the problem.

Section 5: Summary

Summary

To summarise, Yummy Island has incorporated widely used game mechanics to offer an immersive gaming experience for mobile gamers.

Imagine, playing a 3rd person shooter game where you have a short lifespan and you will have to restore your life by picking up collectables in the scene. If the player, for any reason, misses to collect the food, it will be a game over.

To avoid such a scenario, one must keep collecting foods while at the same time, trying to avoid enemy AI who will aim to decrease your lifespan even further upon interacting with you.

Additionally, online survival mode offers an immersive gaming experience by either matching you with different gamers or connecting you with your connections.

References

Figure 1 - <http://pixelartmaker.com/art/556187e9d706509>

Figure 4 - <https://www.shutterstock.com/image-vector/set-level-maps-assets-world-mobile-766617649>

Figure 5 - <https://www.gfinityesports.com/article/2250/call-of-duty-mobile-tips-and-tricks-tutorial-to-improve-your-multiplayer-gameplay-for-cod-mobile-on-ios-and-android-devices>

Figure 7 - <https://creativemarket.com/CreativerStudio/1711239-Virtual-Joystick-Cartoon-Pack>

Figure 8 - <https://blog.turtlebeach.com/fortnite-and-pubg-mobile-battle-royale-for-your-phone/>

Figure 9 - <https://forums.battlefield.com/en-us/discussion/128194/invisible-players-in-every-match-fix-this-finally/p2>