Design of online multiplayer video games for mobile platform

1st - 31st May 2015

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This Interaction Design degree project, titled '**Design of online multiplayer video games for mobile platform**' is done in partial fulfillment of the requirement for the degree of Master of Design in Interaction Design at Industrial Design Centre, IIT Bombay.

The project was completed with **June Software** Pvt Ltd, Pune.

Duration: 1st - 31st May, 2015

Declaration

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all the principles of academic honesty and Integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission.

I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources that have thus not been properly cited or from whom proper permission has not been taken when needed.

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Abstract

India is the world's first mobile-only country[1]. The reach of mobile devices in the Indian market provides a huge opportunity in the entertainment and service sectors. The technology allows the users to perform a variety of tasks apart from being connected.

In this project, we bring social circles together through multiplayer games with mobile platform as our launch pad. We describe two game worlds. One with a fantasy race theme, where players can choose and progress characters from a variety of classes and a First Person Shooter. The progression mechanic allows the players to use their own imagination and narrative to empathize with the game world and its characters. The game world was detailed to provide a wide range of gameplay experiences both offline and online.

Finally, critical game parameters were listed and a framework was set up to analyse the behaviour of players which will help in maintaining retention, fixing design flaws, live operations, and publishing new updates. Games are known for their memorable moments and a multiplayer platform assures such events.

[1] Mary Meeker's internet trends May 2015
http://www.kpcb.com/internet-trends

About June Software

June Software was founded in 2010 to create new and innovative products in the areas of Education using Games. Our team has been vetted by incubators like yCombinator (W2012) and ImagineK12 (W2012.
TapToLearn.com, a sub brand was set up to focus exclusively on building learning games for English and Math for Grades K- 6.

Our unique approach to e-learning paid off with Apple marking us as a New and Noteworthy Application and our Grammar App becoming the Number 1 Ranked App in the World in multiple countries.

We have also grown now to 32 full time employees worldwide and have more than 35 Million downloads of our apps and games.

We are trying to build a global company out of India that we would like to do business with ourselves. We aim to WOW customers through our support and outstanding user experiences, and be a company that's human, respectful, transparent and socially conscious.

www.junesoftware.com

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Design brief I

The project is to design a new role playing multiplayer platform runner - Warrior Dash, which requires a good understanding of the current version of game engine, its capabilities and design flaws. Define the core interaction loop of the game involving character progression detailing the journey of the player - gaining experience, leveling up and rewards. Design the game mechanics within the limitations of technology and balance them to avoid unfair experiences to the players.

Finally, build a revenue model around the game.

About Ninjump Dash

The project started with the existing game engine, re-skinning the elements to deliver a mood board of the game. The requirement was to incorporate character progression system in the current version of platform runner, where every character provides a unique experience in the game world.

Ninjump Dash is an online multiplayer platform runner, where players choose a costume and race against other players or bots. There are different levels or maps with obstacles and jump boosters which adds uncertainity to the race. There are pick-ups spread across the level, which grants players with any one of the six powers - speed boost, seeking projectile, straight projectile, trap box, time slow down, shield or a portal that can send a player behind to a distance. With these, players can strategise, making the game much more than a race.

Alternatively, players can buy consumables using the in-game currency (Soft currency) or real currency (Hard currency) for special boosts and advantages for a particular round. Consumables and costumes are the basic monetization in the game. There is a league system which lists a player in a league according to the number of wins categorized as Bronze, Silver and Gold.

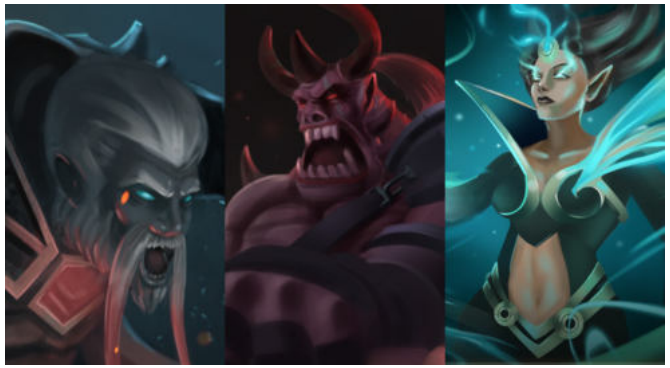
The current version of the game a repetitive race with different costumes. The characters are for vanity and lacks variance in gameplay. There is no progression other than leaderboard, which is a visual representation of win and lose statistics.

The weapons add personality to the character but has no effect inside the game. The pick-ups across the levels are pre-defined and do not depend upon the character that the player has chosen.

Monetization was limited to consumable attribute boosters and costumes which players hesitate to invest in, because of no advantage in the game.

Also, the User Interface of the game had a pin-ball design. There was no focus to any of the actions on the screen, making it easy for the player to miss out important functionalities. The UI failed to direct the player towards the core loop of the game.

Character design



Since the studio worked in an Agile environment, the project had to start where designers and developers can work simultaneously. Hence the process began with defining a basic set of characters for the game.

The game was about ancient and fantasy warriors and inspiring from mythology and fantasy adventures, four basic classes were defined which were unique visually and in their abilities. The initial classes were Brutes, Wizards, Assassins and Swordsmen. The class defines the attributes and abilities of a character.

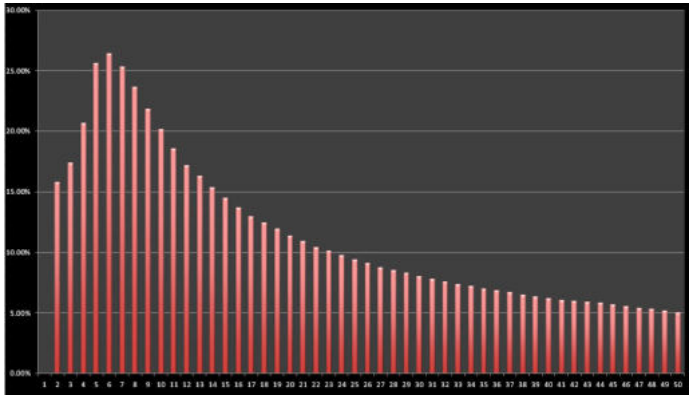
Each character was detailed in terms of narrative, demographics and abilities. The pick-ups were customized to be unique visually from character to character. Also inherent passive and special powers were designed so that the players can strategise without depending on the pick-ups.

Primary Stat	Actions	Base Range
Strength	Powerup Throw Speed	2000
	Punchbox Power	400
	Upward Slope Speed Factor	0.8
	Downward Slope Speed Factor	1.1
Agility	SuperRunSpeedFactor	1.25
	Run Speed	1150
	Jump Height	240
	Swim Speed	360
	Upward Slope Speed Factor	0.8
	Downward Slope Speed Factor	1.1
Vitality	Punchbox Resistance Factor	
	Freeze Time Effect Duration	
	Freeze Time Speed Reduction Factor	
	Shuriken hit Effect Duration	
	Rocket Hit Effect Duration	
	Hit Effect Speed Reduction Factor	

To make the game a semi-RPG, the stats which would affect each class of characters and their progression was laid out. The characters were defined by three base attributes - strength, speed and vitality. As the players gain experience from races and completing challenges, their character would level up, improving the base attributes of that particular character.

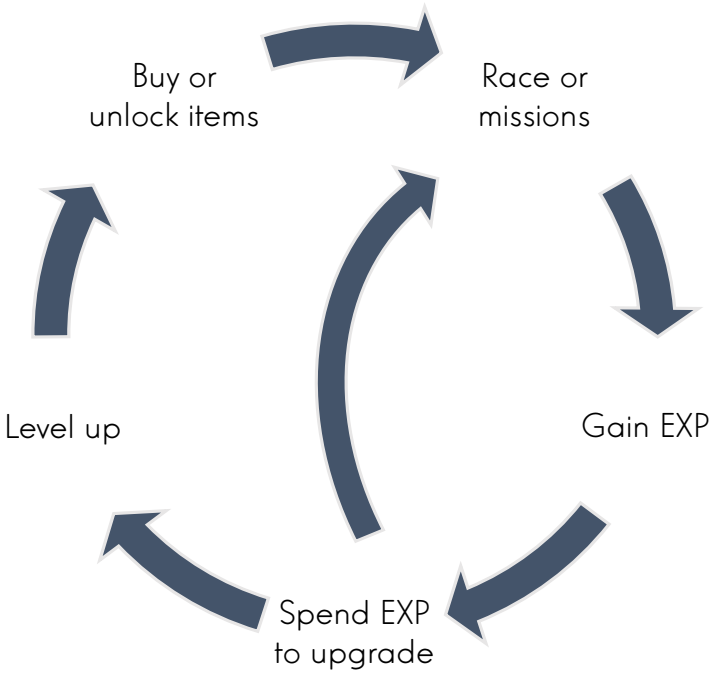
All the parameters of the game like move speed, jump height, upward speed, damage etc. were categorized to be affected by any one of the three base stats. The base values of these parameters and their percentage increase or decrease factor per level were estimated and tested in the game engine. This was critical since it affects the balance of the game. There should not be an overpowered character.

LVL	TOTAL EXP.	EXP To Next Level
1	800	150
2	950	200
3	1,150	300
4	1,450	500
5	1,950	700
6	2,650	900
7	3,550	1,100
8	4,650	1,300
9	5,950	1,500
10	7,450	1,700
11	9,150	1,900
12	11,050	2,150
13	13,200	2,400



The journey of the player with each character should be different. For that the progression values were plotted in such a way that the growth curve is different for different characters. For example, the brutes might grow slow in the early game, but towards the end they will gain EXP fast.

Experiences gained by the player on each scenario like race positions and challenges completed was estimated by forming a formula. The values were tweaked after hours of gameplay testing to make the leveling up curve smooth. Using these values, the total time investment requried from the player to take a character from level 0 to 50 was found to be 92.2 hours.



Core loop

The core loop of the game was modified to include progression and customizations. The loop works as -
Players choose a character and completes races or challenges to gain EXP points. These points can be spend on upgrading any of his or her character in the roster. Once a character upgrades to a certain EXP, that character level ups and specific items like weapons, skin and abilities will be unlocked. The loop is exclusive to each character ie EXP gained on one character cannot be spend on another. This will encourage players to try different characters.

Version 2 features

After incorporating the RPG system into the gameplay, roadmap of the game was charted out.

Version 2 will include class specific maps or levels, where some class of characters will have slight advantage. These will act as home side maps and prompt the users to raise characters simultaneously. Home side maps could be later grouped and various leagues and events can be opened. Such functionalities will add a different gameplay experience.

To increase the retention, a persistent world was mapped out. This is a rel-time world, where any event happening in the game would affect every other player, even if they are not logged in. For example, when some player is dominating a league in an away side map, the players belonging to that map will be notified so that they can keep coming back to the game and protect their home side. Persistent world mechanic assures an increased rate of retention.

Monetization

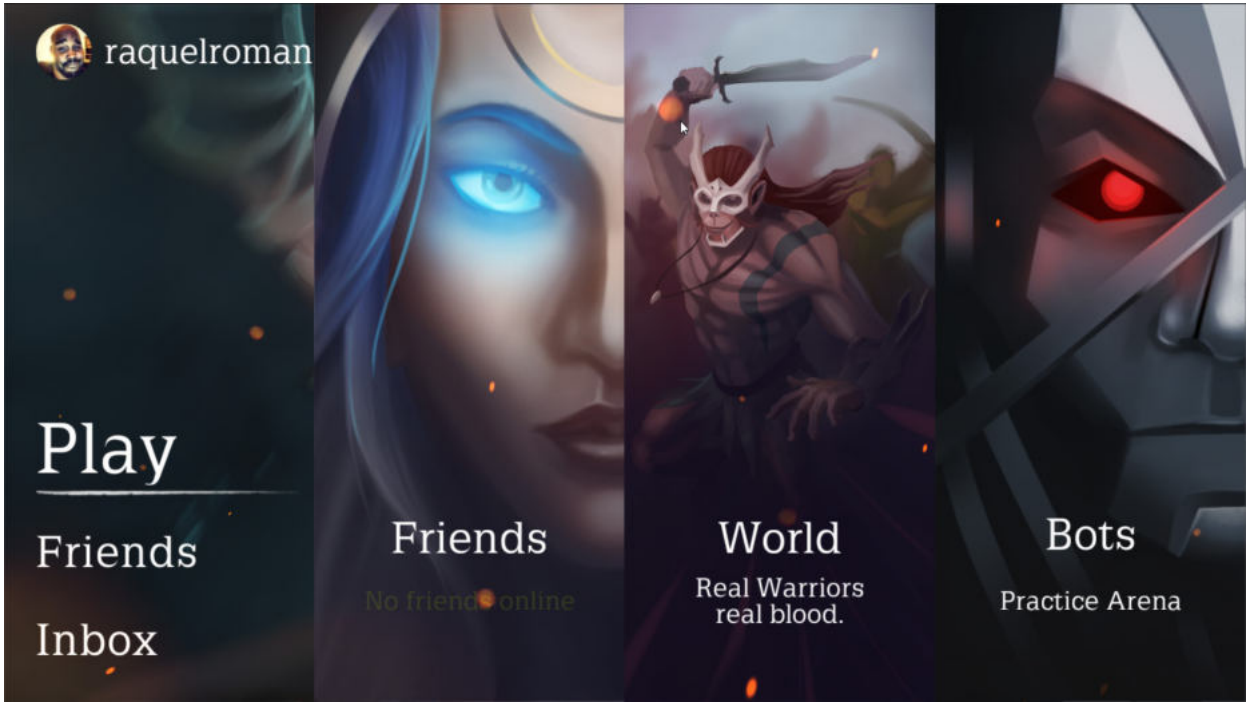
Building a revenue model was a challenging task. The game should not fall into pay-to-win genre. The revenue model was from in-app purchases. These include attachments to the characters - weapons, armor or even costumes. Some items are for vanity, while others have effect on the gameplay. The attachments can be upgraded as well by spending EXP.

As the players level up, they are rewarded with premium items which could be crafted with other items in the store. In the coming versions, these could be made tradable also.

But rewards and characters will not be bought often. Temporary ability boosters are more frequently bought by the players as per Ninjump Dash. A collection of booster cards were sketched out which the players can buy and use for a single round of race. Each card boosts a particular attirbute and allows a slight advantage to the player who uses it.

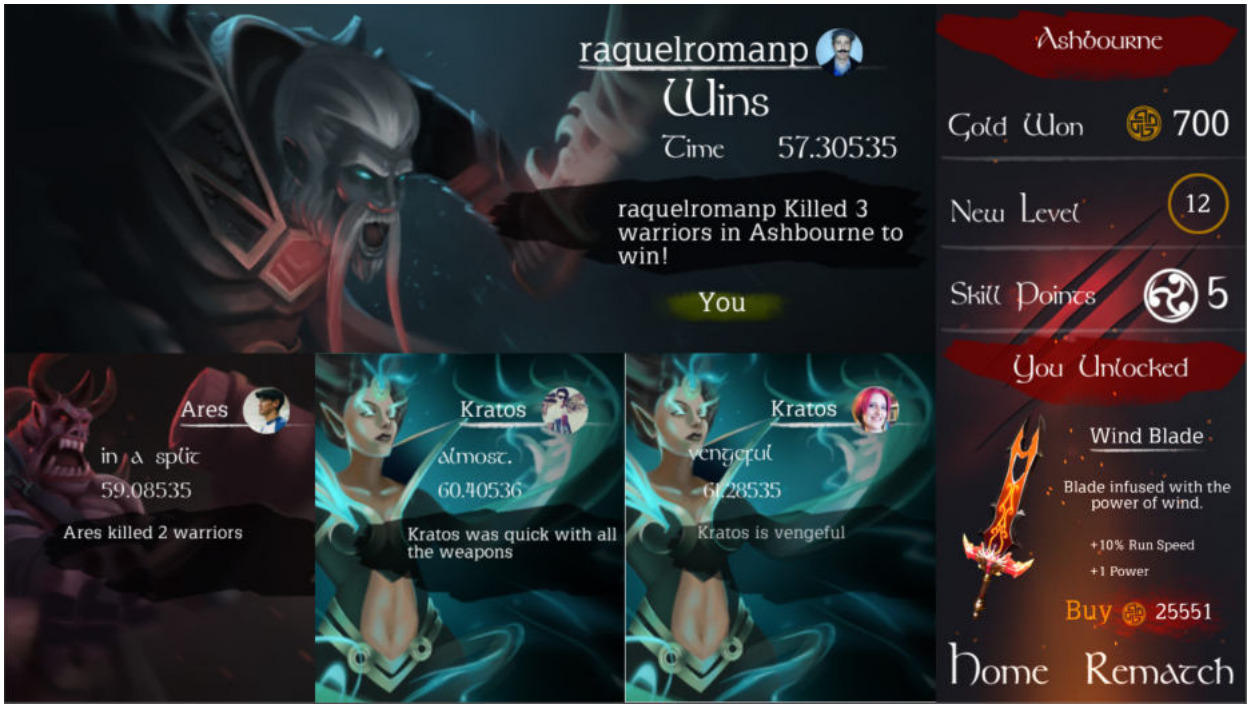
UI/UX Mockups

Logo and splash screen.



Different game modes in a minimal tile layout.

Character with the special power which has a cool down period depending upon the level of the character. There is a progressbar which provides the holistic view of the race positions.

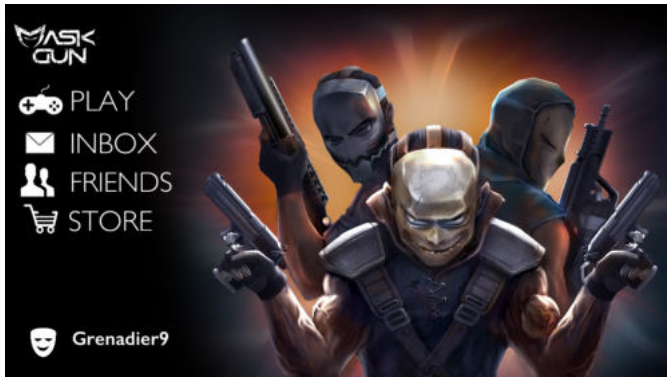


Improvised the results page from showing just the positions to a narrative. Taunts and achievements are built into the narrative, making the results interesting than just statistical data.

Players can buy or upgrade character accessories by spending soft or hard currency. Temporary power boosters are available as cards which can be bought from the in-game store.

Design brief II

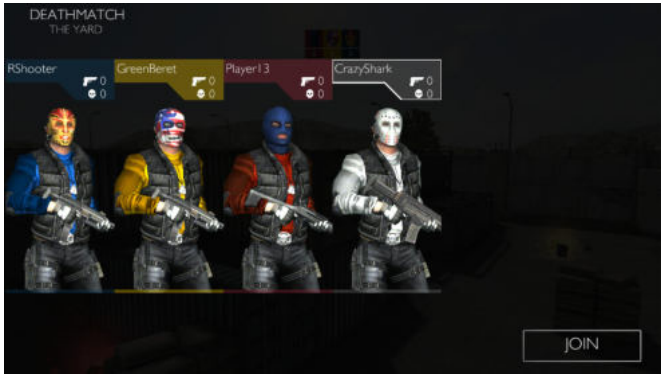
A second project to extract the User Interface to expose the functionality of their multiplayer First Person Shooter game which is being developed and reaffirm the relevance of the core interaction loop. Then design the User experience to retain players in the core loop.



About Mask Gun

Mask Gun is an online multiplayer first person shooter for mobile platform. Players start with a default set of weapons and win matches to gain soft currency with which they can upgrade their equipments. There are pick-ups in the levels which gives ammo or health in game.

There are two game modes - deathmatch and team deathmatch. The goal is to eliminate as many enemies as possible within the time limit. The player or the team with the highest kills will win the round.

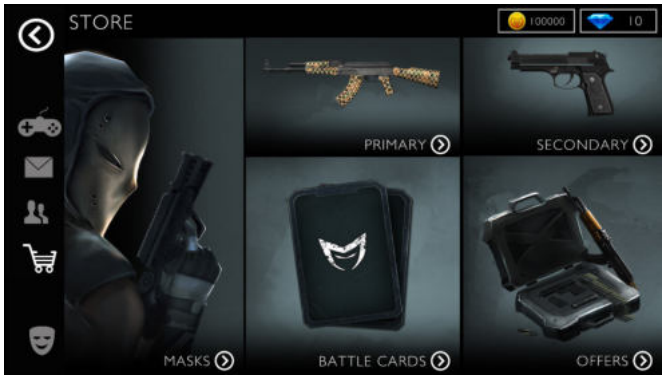


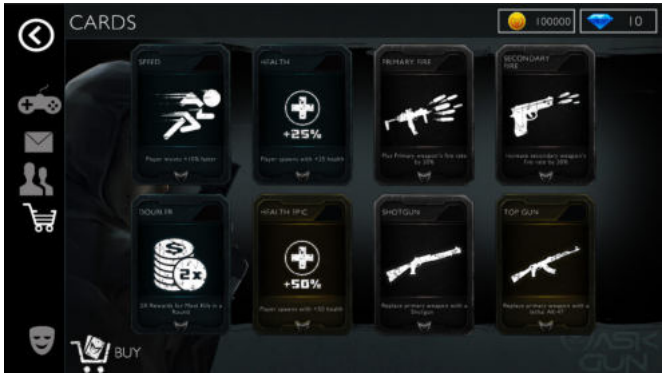
The current version has only two game modes - deathmatch and team deatchmatch. The goal of both modes are the same - to get maximum frags. Such goals do not take the best of strategy and team skills. The players should be able to work as a team and plan actions to win rounds.

The user interface did not reflect the core loop and failed to follow any particular theme. Critical information were missing or lacked focus - like healthbar in the in-game HUD was numerals which added cognitive load to the players. The scoreboard and console messages lacked focus.

Monetization was limited to guns, masks and their upgrades which were represented in a statistical format.

There was a need to add functionality and visualize them to improve the gameplay. Initially, more game modes were added which demanded strategy - capture the flag and improvised the levels to reduce the point-and-shoot factor.





The weapons and masks were made fully customizable - from skin to upgrades. Players can buy or upgrade items using the soft currency. This also adds to progression apart from winning rounds.

To bring back players for more sessions, live events and leagues were designed. The rewards included new items that could temporarily grant advantage to the player. These items could also be crafted by collecting or winning its parts from playing online rounds. This results in more multiplayer sessions per player.

Consumables were also made so that the players visits the in-game store more often. That way, they will stay updated about offers and new items.

All the screens were re-visualized to expose the new game mechanics.

UI/UX Mockups

Logo and splash screen.

Home screen with notification pop-up showing players in the friends list who are currently in game. Players can join them from home screen itself.

New game modes - team death match, death match, capture the flag and training ie against AI bots.

Levels which requires strategy and team skills.

HUD which has clear focus on the healthbar, boosters applied and scoreboard. Taunts, friend invites and in-game store actions are now accessible through the HUD without hindering the gameplay experience.

Results with focus on the score and rewards. Friends can be added to the player's list by tapping their profile picture.

Store with upgrades that are visually represented than just statistical data.

Live events with exclusive rewards.

Apart from online multiplayer sessions, tasks or daily missions are listed out to have variety in gameplay. These missions are designed in such a way that they urge the players to try different game modes, weapons and achieve different goals.

Monetization was build on top of the customization functionality. Players can buy equipments and their upgrades using soft and hard currencies.

Reference

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