Alpha Release Report - Fruit Smashers

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1 Task Schedule and Timeline

Continuing onto our previous efforts, we believe that we've completed all the tasks that we've originally set out to. Last week, we also spent several hours having an informal, in-group multiplayer playtesting session where we found several more issues that we have since addressed. We have also incorporated the feedback given during the interim presentations. Some modules may undergo minor changes during the playtesting session as we'll try to adjust them to the user feedback during that period. Otherwise, the main architecture and logic will not change, beside an occasional bugfix.

In conclusion, some of the tasks we envisioned took much longer to complete, while some took less. Overall, we think that we've very slightly underestimated the total time for developing all the listed features. However we conclude that this did not negatively reflect on the overall quality of the game.

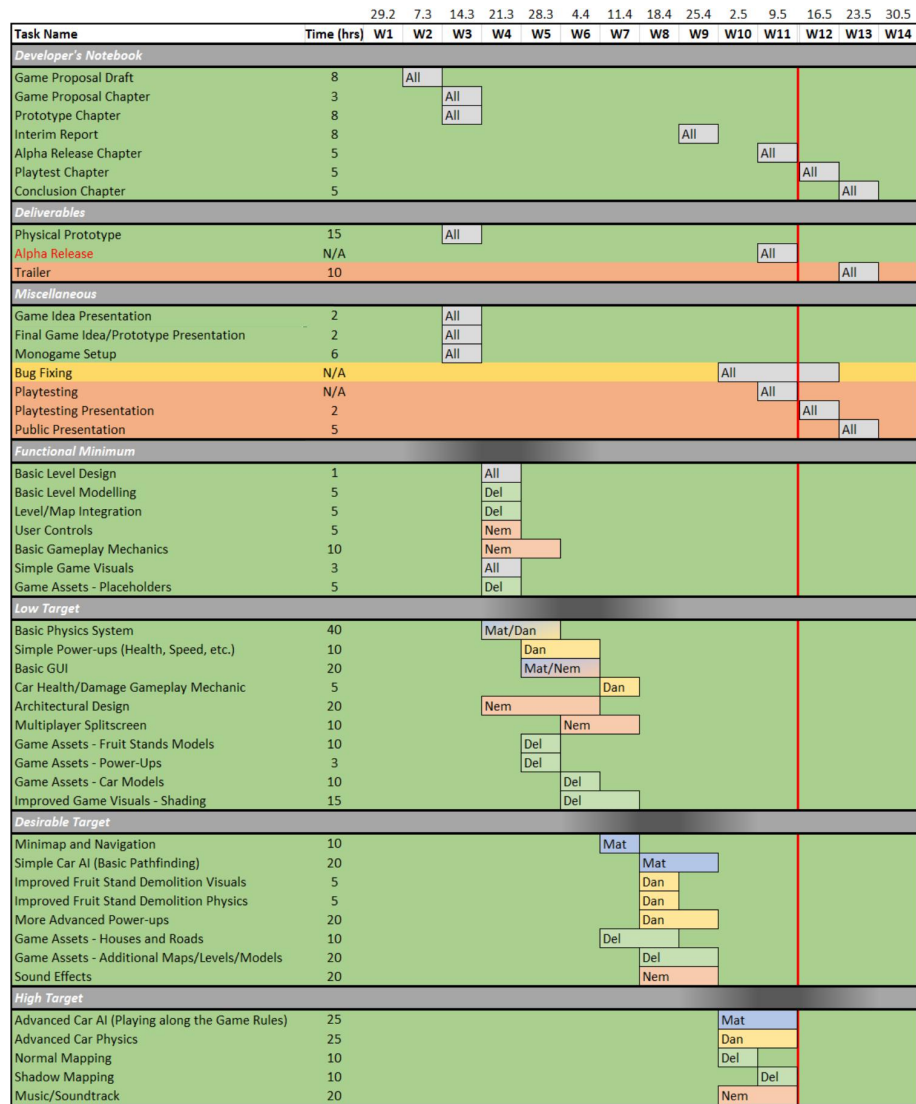| Task Name	Time (hrs)	W1 (29.2)	W2 (7.3)	W3 (14.3)	W4 (21.3)	W5 (28.3)	W6 (4.4)	W7 (11.4)	W8 (18.4)	W9 (25.4)	W10 (2.5)	W11 (9.5)	W12 (16.5)	W13 (23.5)	W14 (30.5)
Developer's Notebook															
Game Proposal Draft	8	All													
Game Proposal Chapter	3		All												
Prototype Chapter	8		All												
Interim Report	8								All						
Alpha Release Chapter	5										All				
Playtest Chapter	5												All		
Conclusion Chapter	5													All	
Deliverables															
Physical Prototype	15		All												
Alpha Release	N/A											All			
Trailer	10													All	
Miscellaneous															
Game Idea Presentation	2		All												
Final Game Idea/Prototype Presentation	2		All												
Monogame Setup	6		All												
Bug Fixing	N/A									All					
Playtesting	N/A											All			
Playtesting Presentation	2												All		
Public Presentation	5													All	
Functional Minimum															
Basic Level Design	1				All										
Basic Level Modelling	5				Del										
Level/Map Integration	5				Del										
User Controls	5				Nem										
Basic Gameplay Mechanics	10				Nem										
Simple Game Visuals	3				All										
Game Assets - Placeholders	5				Del										
Low Target															
Basic Physics System	40				Mat/Dan										
Simple Power-ups (Health, Speed, etc.)	10					Dan									
Basic GUI	20				Mat/Nem										
Car Health/Damage Gameplay Mechanic	5						Dan								
Architectural Design	20				Nem										
Multiplayer Splitscreen	10						Nem								
Game Assets - Fruit Stands Models	10					Del									
Game Assets - Power-Ups	3					Del									
Game Assets - Car Models	10						Del								
Improved Game Visuals - Shading	15					Del									
Desirable Target															
Minimap and Navigation	10							Mat							
Simple Car AI (Basic Pathfinding)	20								Mat						
Improved Fruit Stand Demolition Visuals	5								Dan						
Improved Fruit Stand Demolition Physics	5								Dan						
More Advanced Power-ups	20								Dan						
Game Assets - Houses and Roads	10							Del							
Game Assets - Additional Maps/Levels/Models	20								Del						
Sound Effects	20								Nem						
High Target															
Advanced Car AI (Playing along the Game Rules)	25											Mat			
Advanced Car Physics	25											Dan			
Normal Mapping	10											Del			
Shadow Mapping	10												Del		
Music/Soundtrack	20											Nem			

Figure 1: Screenshot showcasing the current state of our game. Green items are finished, yellow ones are currently in development and red ones are not yet started.

2   List Of Features Improved Since The Interim Presentations

2.1   AI Vehicles

During one day play testing session we conducted, we found out that playing against AI vehicles is already quite challenging and hence we decided not to devote too much time on their further development. The major change was an improvement in the defending logic of the vehicles. Currently, the AI vehicle does not just stop nearby a fruit stand to block the street but it also moves around it, depending on which direction the closest opponent is approaching from. On the top of this improvement, we have also refined the graph AI vehicles use for driving.

At this point, AI vehicles can be considered fully capable of playing the game. Since we have moved from the simplistic defending strategy, we consider the *Advanced AI* task from the proposal to be finished and we do not expect to improve AI further.

2.2   Fruit Stand Destruction

At the time of writing the interim report, we used a simple fruit destruction animation which played on a collision with a fruit stand. Since then, we have moved to a fully physical simulation. The fruit stand is part of the physics space and hence is handled as any other object cars can collide with. Shortly after the destruction, fruit and wooden pieces are removed from the game so they do not obstruct the streets forever.

Figure 2: A screenshot featuring physically based fruit stand destruction.

2.3   Navigation Arrow

To make the navigation towards the fruit stand easier, we have implemented a navigation arrow that points to the stand location. This serves as a complement to the minimap in the corner.

Figure 3: The navigation arrow above the car.

2.4 New Round Start Delay

We found out that it can be quite confusing when the fruit stand is destructed and the new round immediately starts. Hence we decided to add about 5 seconds delay between rounds. During that time, the countdown is shown on the screen, followed by the *attack / defend* clue.

Figure 4: The new round countdown. Note that the navigation arrow and fruit stand location on the minimap is hidden during this period.

2.5 Vehicle Tuning

We spent some time tweaking the behavior of cars, as we were unsatisfied with how they felt while driving. Often the cars would flip because of sudden turns or from striking a building at the wrong angle. We found that default car prefab provided by the BEPU physics engine was tuned with unrealistically

high strength and tire grip, and so we resolved some issues by customizing the controls, friction coefficients, and springs in the suspension system. As a more strict (but not as physically realistic) safeguard, we also added an artifical torque to the car that resists roll past a certain angle.

Also, we made some tweaks to how collisions affect gameplay. Currently, cars receive more damage from sidelong impact than frontal (to encourage strategic engagements), and friendly fire is disabled.

2.6   More Powerups

We added two more powerups. Both of them have a more defensive role (which is good, since we suspect defenders are somewhat underpowered).

One powerup spills a pile of banana peels, which causes cars to swerve when driving over.

Figure 5: A slippery pile of banana peels strewn about.

The other powerup drops a wall of decorative pottery. These flowerpots are not stationary, but they are quite heavy, so while they do not outright prevent the attacking team from scoring, they do make it harder to get a high score.

Figure 6: Heavy flowerpots blocking access to a fruit stand.

2.7 Car Colors

During playing we discovered that it was very difficult to see who is on the same team. Therefore we added a second color variant for the car, such that the cars of the two competing teams can easily be distinguished by color.

2.8 Map Revisions

One feedback we got during the interim presentation, was that the map was a bit hard to navigate, as it looked the same everywhere. To mitigate this problem we modeled some landmarks which should make it easier for the player to recognize locations. We added some water towers, a church, some statues and some flowerpots to the map, see Figure 7. Additionally, we made the map again a bit more open to make the driving easier for the players. Also we tried to reduce the "maze" feeling the map had previously by adding some more shortcut roads. For a comparison of the old with the revised map see Figure 8 on the next page.

Figure 7: Some newly added map landmarks: church, statue and flowerpots.

2.9 Gui Improvements

The Gui system has also received improvements with the most important ones described below.

2.9.1 Multiple-User Input

First of all, we've redone the way input interacts with states, such that any controller can advance and control the application flow of the game, reducing downtime during menus if the main controller is slow to react.
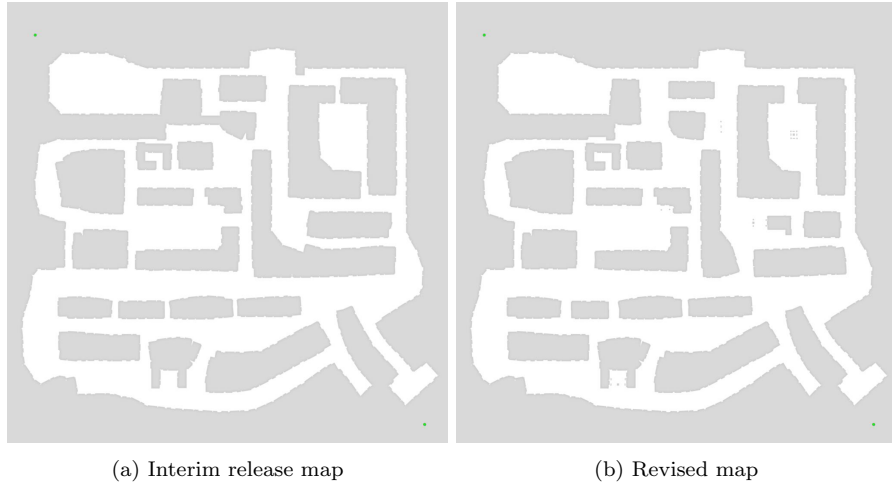
(a) Interim release map   (b) Revised map

Figure 8: Comparison of the map at the time of the interim release and the new map.

2.9.2 Toast Messages

We've found that during the game we needed to display additional game information to the players through the GUI and with that goal, we've added *Toast Messages* which allow pop up information to appear per player viewport. Currently, we notify the players when the new round is about to start, their role (attacker/defender) in the upcoming round, as well as the number of points that they've scored if they hit the fruitstand.

In addition, toast messages are animated and the displayed text changes color and message according the amount of points the player has scored. The colors can be easily changed for visibility, and we hope to get the best values communicated by the testers in the upcoming weeks.

Figure 9: A screenshot featuring a toast message after the player has scored.