Requirements and Analysis Document for Project_D

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This version overrides all previous versions.

1 Introduction

Sometimes you would like the complex interaction that exists in a good board game. However often a board game requires a lot of dedicated time as you have to setup the board and play. This problem could easily be solved by creating a computer game which takes the good elements from a board game and combines them with the comfort of a computer.

Our goal is to create a game with the core mechanics of deduction that can be played in multiple short sessions of about 5 minutes. This is a game that requires multiple people to be played, a party game. The game's story/setting takes place in a factory with a large amount of workers. Players participating gets one out of two roles. Some of them will be supervisors in the factory and one will be a saboteur. The underlying game mechanic is simple, find the saboteur before he destroys the factory. However everyone looks exactly like the workers doing their daily routine. This means that map awareness and a good sight for detail is what separates a good from a bad player.

The game will be utilizing the depth a 3D world provides while still having simple and clean looking graphics, a isometric view. All controls will be done using a xbox controller. We have taken some inspiration from the game *Hidden in Plain Sight* which is very fun. However we feel like it could be improved upon which we hope to accomplish with our game.

1.2 Definitions, acronyms and abbreviations

- Player: The person holding the controller.
- Supervisors: The "good" characters in the game, trying to get the factory to function as usual.
- Saboteur: The "evil" player, is trying to destroy the factory from the inside.
- Worker/NPC: The characters walking around the factory that serves the purpose of being decoy for supervisors/saboteur.
- Machine: The target for the saboteur and the things all supervisors need to maintain and secure. The main objective of the saboteur.
- Spotlight: A spotlight that casts a pillar of light around on the map, when hovering over a sabotaged machine for the first time it will trigger an animation of the machine that is destroyed.

- Honest interaction: Either maintaining a machine or entering the spotlight controller.
- Dishonest interaction: The saboteur is sabotaging a machine.
- Catch: The supervisors has figured out (think that they've) who the saboteur is and tries to catch him/her.
- Blackout: A saboteur has the ability to make a 5th of the map around him/her go black and this way escape in the darkness, used to give the saboteur another chance if spotted by the supervisors.
- Strike: The supervisors have tried to catch 4 workers but none of them were the saboteur they will start to strike and the supervisors lose.

2 Requirements

2.1 User interface
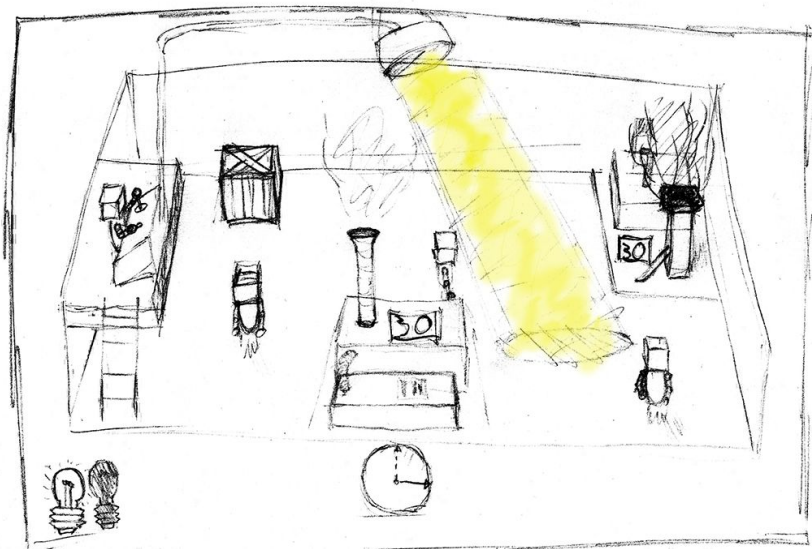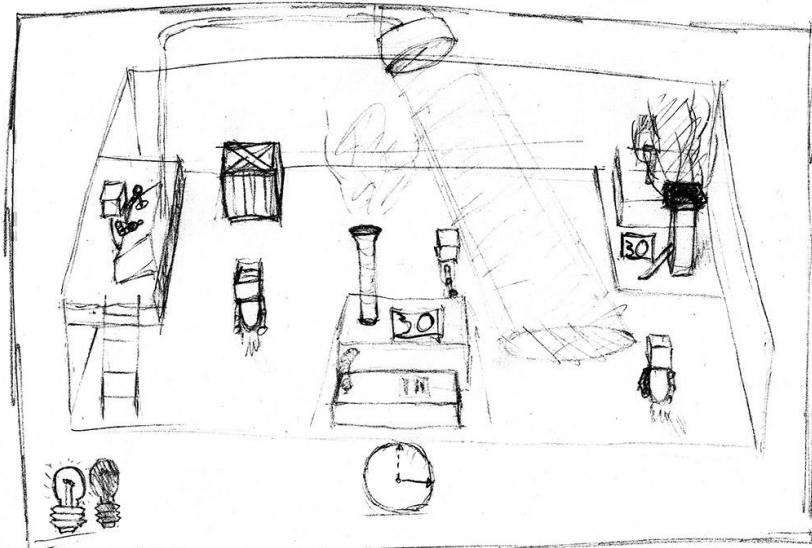
2.2 Functional requirements

2.2.1 Use cases

Main menu
Start App
Select Play
Select Options
Select Exit to Desktop

Options menu

Choose Players Screen
Choose Players Start
Add Player
Remove Player
Change Saboteur
Back to Main Menu
Continue to Tutorial

Tutorial
Tutorial Start
Continue to Game

Main Game
Main game intro
Run
Honest Interaction
        Work Machine
        Control spotlight
                Detect Damage
                Exit Spotlight
                Interrupted
Dishonest Interaction
        Sabotage of Machine
Use Ability
        Blackout
        Catch
Machine Timeout
Game End
        Machines Destroyed
        Time Out
        Saboteur Caught
        Worker Strike
Pause

Pause Menu
Pause Menu Start
Select Resume
Select Exit to MainS Menu

Select Exit to Desktop
End Screen
Endscreen Start
View Replay
Continue to Main Menu

Controller connection lost menu:
Controller connection lost
Controller connection back
Resume game without player
Exit to main menu

2.3 Non-functional requirements

- Testability
- Sound
- Music
- Good looking graphics
- Map editor
- Relatively good performance
- Support for XBOX-controller

3 Use cases

An UML use case diagram:

3.1 Use case listing

UC: Start Application		
Summary: User starts application		
Priority: High		
Extends:		
Includes: Select Play, Select Options, Select Exit to Desktop		
Participators: Players		

Normal Flow		
	Actor	System
1	Player runs the application	
2		Display Main menu
UC: Select Play		
Summary: User selects play from main screen		
Priority: High		
Extends: Start application		
Includes: Choose Players		
Participators: Players		
Normal Flow		
	Actor	System
1	Player selects "Play" option from main menu	
2		UC: Choose Players
UC: Select Options		
Summary: User selects options from main screen		

Priority: Medium		
Extends: Start Application		
Includes: Options menu		
Participators: Players		
Normal Flow		
	Actor	System
1	Player selects "Options" option from main menu	
2		UC: Options menu
UC: Select Exit To Desktop		
Summary: User selects exit to desktop		
Priority: High		
Extends: Start Application		
Includes:		
Participators: Players		
Normal Flow		
	Actor	System
1	Player selects "Exit to desktop" from main menu	
2		Shuts down application

UC: Select Players Menu		
Summary: Players are allowed to join or leave the game, and change teams.		
Priority: High		
Extends: Select Play		
Includes: Add Player, Remove Player, Change Saboteur, Back to Main menu, Exit to desktop		
Participators: Players		
Normal Flow		
	Actor	System
1	Player presses A-button to join game	
2		Player is added to the game. A character appears under his/her name, showing the role he/she is going to play.
Alternative flows		
	Actor	System
1	Player presses B-button to leave game	
2		Player is removed from the game. The character under his/her name disappears.

		Actor	System
	1	Player changes role by pressing up or down on the D-pad.	
	2		The player's role changes. The character displaying the player's role also changes.

UC: Back To main Menu

	Actor	System
Summary: player presses back to the main menu button		
Priority: medium		
Extends: Select Player menu		
Includes: Main menu		
Participators: Players		

Normal Flow

		Actor	System
	1	Player presses return to main menu	
			UC: Start Application/Display main menu

UC: Tutorial Start

	Actor	System
Summary: All player satisfied with roles and		

game continues to tutorial		
Priority: high		
Extends: Select Player menu		
Includes: Tutorial start		
Participators: Players		
Normal Flow		
	Actor	System
1	Player presses start game button	
		Shows a picture of the controls corresponding to each action or ability.

UC: Continue to game		
Summary: Continued from tutorial to game.		
Priority: High		
Extends: Tutorial start		
Includes:		
Participators: All players		
	Actor	System
1	Press start button	
2		Tutorial screen will fade and the the map will fade in. Continue to main game intro

UC: Main game intro		
Summary: Main game intro, a cutscene showing the workers entering the factory		
Priority: Low		
Extends: Continue to game		
Includes:		
Participators: All players		
	Actor	System
1		A cutscene showing the workers entering the factory. Probably for about 2-4 seconds.
UC: Move		
Summary: A player uses the joystick or the D-pad. Their character moves in the corresponding direction in the map.		
Priority: High		
Extends:		
Includes:		
Participators: All players		

Normal flow		
	Actor	System
1	Presses the left joystick or the D-pad in any direction.	
2		The character moves in the same direction as the joystick/D-pad points in the map.
Alternative flow		
	Actor	System
1	Press the left joystick/D-pad and hits a wall/static object	
2		The character does not move as it is blocked by the object.
Exception walk into another character		
	Actor	System
1	Press the left joystick/D-pad and hits another character (NPC, player).	
2		They will pass by each other, not collide and get stuck or go through each other.
UC: Honest interact		
Summary: A supervisor press the A-button and interacts with either an object or another player.		

Priority: High		
Extends:		
Includes: Work Machine, Control spotlight		
Participators: Supervisors and NPC		
Normal flow		
	Actor	System
1	A supervisor press the A-button close to a machine.	
2		UC: Work machine
Alternative flow		
	Actor	System
1	A supervisor press the A-button at the spotlight controller in the map	
		UC: Control spotlight
UC: Work machine		
Summary: Every 30-40 seconds a supervisor needs to work the machine. If not the machine will break.		
Priority: High		
Extends: Honest interaction		
Includes:		

Participators: Supervisors and NPC		
	Actor	System
1		The machines timer on the screen will reset to 30-40 seconds.

UC: Control spotlight

Summary: A supervisor press the A-button and start to control the spotlight that searches for damaged machines.		
Priority: High		
Extends: Honest interaction		
Includes: Detect Damage, Exit Spotlight, Spotlight interrupted		
Participators: All players and NPC		

Normal flow

	Actor	System
1	Presses the joystick or D-pad in some direction	
2		The spotlight will hover around the factory in the same direction as the joystick is pressed.
3		UC: Detect damage

Alternative flow		
	Actor	System
1	A player/NPC press the A-button when controlling the spotlight	
		UC: Exit spotlight
Exception interrupted		
	Actor	System
1	A player/NPC press A at the spotlight controller when another player/NPC is controlling the spotlight	
		UC: Spotlight interrupted

UC: Detect damage

Summary: Hover the spotlight around the factory. If the light comes upon a destroyed machine play an animation.		
Priority: High		
Extends: Control spotlight		
Includes:		
Participators: All players and NPC		
	Actor	System
1		Damage is detected if a machine has been sabotaged by the saboteur and an animation

		portraying how the machine falls apart is displayed.
# UC: Exit spotlight		
Summary: The spotlight is exited and the supervisor/NPC can move around in the map.		
Priority: High		
Extends: Control spotlight		
Includes:		
Participators: All players and NPC		
	Actor	System
1		The spotlight will be turned of and the player/NPC will take a small step back from the controller.
# UC: Spotlight interrupted		
Summary: Another player or NPC is going to use the spotlight controller and therefore interrupts the current user.		
Priority: High		

	Actor	System
Extends: Control spotlight		
Includes:		
Participators: All players and NPC		
	Actor	System
1		The current spotlight user will take a small step back.
2		The interrupting player/NPC will start to control the spotlight in its place.

UC: Dishonest interact

Summary: Saboteur presses X-button		
Priority: High		
Extends:		
Includes: Sabotage of Machine		
Participators: Player (Saboteur)		

Normal Flow

	Actor	System
1	Press X-Button close to machine	
2		UC: Sabotage of Machine

Alternative flow

Out of Range		

	Actor	System
1	Press X-Button away from machine	

2		Nothing happens

UC: Sabotage of Machine

Summary: Saboteur destroys machine		
Priority: High		
Extends: Dishonest Interact		
Includes: Game End - Machines Destroyed		
Participators:		

Normal Flow

	Actor	System
1		Plays rumbling sound and reduces number of working machines by one. Sabotaging player displays interact animation, locking the character in place for a brief moment.
2	Saboteur is free to act again	

Alternative flow

In Spotlight		
	Actor	System
1		Plays rumbling sound and reduces number of working machines by one. Sabotaging player

			displays sabotage animation, locking the character in place for a brief moment. The sabotaged machine crumbles and stops working.
	2	Saboteur is free to act again	
Last Machine			
		Actor	System
	1		Plays rumbling sound and reduces number of working machines by one. Sabotaging player displays sabotage animation, locking the character in place for a brief moment. The sabotaged machine crumbles and stops working.
	2		UC: Game End - Machines Destroyed

UC: Use Ability

Summary: Player presses B-button			
Priority: High			
Extends:			
Includes: Lights Out, Catch			
Participators: Players			

Normal Flow

		Actor	System
	1	Supervisor presses B-button. Close to another character.	
	2		UC: Catch

Alternative flow

Supervisor Misses		
	Actor	System
1	Supervisor presses B-button away from another character.	
2		Miss animation and swing sound is played.

Saboteur Uses Ability		
	Actor	System
1	Saboteur presses B-button.	
2		UC: Lights Out

UC: Catch

Summary: Supervisor catches another character.		
Priority: High		
Extends: Use Ability		
Includes: Game End - Strike, Game End - Saboteur Caught		
Participators: Players		

Normal Flow

	Actor	System
1		A character is hit with a baton and knocked to the floor.
2		UC: Game End - Saboteur Caught

Alternative flow		
Wrong victim		
	Actor	System
1		A character is hit with a baton and knocked to the floor. He then proceeds to stang up and does an angry animation. The player swinging the baton is locked in place for the duration of the animation.
2	The player is free to act again.	
3		The now angry worker moves to the top edge of the factory, holding a "STRIKE"-sign.
Wrong victim number 4		
	Actor	System
1		A character is hit with a baton and knocked to the floor. He then proceeds to stand up and does an angry animation. The player swinging the baton is locked in place for the duration of the animation.
2		All players are locked in place.
3		UC: Game End - Strike
UC: Lights Out		
Summary: Saboteur turns of the lights.		
Priority: Medium		
Extends: Use Ability		

	Includes:		
	Participators: Players		
	Normal Flow		
		Actor	System
	1		The saboteur picks out a remote from his pocket and turns of the lights in one of the factorys quadrants which flicker to ddarkness. The spotlight is also disabled. Saboteur is imobilized while doing so.
	2	Saboteur is free to act again.	
	3		The area remains dark for 5 seconds, making it impossible to identify any characters within.
			The lights return with another flicker.
	UC: Machine Timeout		
	Summary: A machine's timer runs out		
	Priority: Medium		
	Extends:		
	Includes: Sabotage of machine		
	Participators:		
	Normal Flow		
		Actor	System
	1		Timer on machine runs out. A flashing warning light appears.

2		UC: Sabotage of machine
UC: Game End - Machines Destroyed		
Summary: Game ends by catchin wrong character		
Priority: medium		
Extends:		
Includes: Endscreen Start		
Participators:		
Normal Flow		
	Actor	System
1		The factory starts to rumble and the characters, including players, stops moving. The saboteur does a victory gesture and the supervisors a losing one.
2		UC: Endscreen start
UC: Game End - Strike		

	Actor	System
Summary: Game ends by sabotage of machine		
Priority: medium		
Extends:		
Includes: Endscreen Start		
Participators:		
Normal Flow		
	Actor	System
1		The striking workers spread out in the factory while all other characters stand still. Every worker is then converted into a striking worker. The saboteur does a victory gesture and the supervisors a losing one.
2		UC: Endscreen start

UC: Game End - Time out

	Actor	System
Summary: Game ends by timeout		
Priority: medium		
Extends:		
Includes: Endscreen Start		
Participators:		
Normal Flow		
	Actor	System
1		As the timer reaches zero all characters in the

		factory stop. A bomb pops out at the end of the production-line and the supervisors does a victory gesture and the saboteur a losing one.
2		UC: Endscreen start

UC: Game End - Saboteur caught		
Summary: Game ends when the saboteur is caught		
Priority: medium		
Extends:		
Includes: Endscreen Start		
Participators:		
Normal Flow		
	Actor	System
1		The saboteur becomes handcuffed and all characters in the factory stops moving. The supervisors does a victory gesture and the saboteur a losing one.
2		UC: Endscreen start

UC: Pause Menu Start		

Summary:	User presses startbutton and the game displays the pause screen modal	
Priority:	High	
Extends:	Pause Menu	
Includes:	Resume Game, Exit to Mein Menu, Exit to Desktop	
Participators:	Players(All)	

Normal Flow

	Actor	System
1	User presses the "start"-button	
2		Pauses game and displays pause screen modal. Cursor will be placed at resume game.

UC: Resume Game

Summary:	Resumes the game	
Priority:	High	
Extends:	Pause Menu	
Includes:		
Participators:	Players(All)	

Normal Flow

	Actor	System
1	User moves cursor to resume button and presses it with A	
2		Resumes the game and exits the pause screen modal.

UC: Exit to Main Menu

Summary:	Exits to main menu	
Priority:	High	
Extends:	Pause Menu	
Includes:		
Participators:	Players(All)	

Normal Flow

	Actor	System
1	User moves cursor to exit to main menu button and presses A	
2		Stops the game and moves to the Main Menu screen

UC: Exit to Desktop

Summary:	Quits the game	
Priority:	High	
Extends:	Pause Menu	
Includes:		
Participators:	Players(All)	

Normal Flow

	Actor	System
1	User moves cursor to exit to desktop button and presses A	
2		Exits the game

UC: EndScreen Start

Summary:	Game is over and endscreen shows up	
Priority:	High	
Extends:	End Screen	
Includes:	Select Resume, Select Exit to Mein Menu, Select Exit to Desktop	
Participators:	Players(All)	

Normal Flow

	Actor	System
1	User presses the "start"-button	
2		Pauses game and displays pause screen modal. Cursor will be placed at resume game.

UC: View Replay

Summary:	Shows a replay of the game. All machines being destroyed and ends with showing how the traitor is caught if he was.	
Priority:	Low	
Extends:	End Screen	
Includes:		
Participators:	Players(All)	

Normal Flow - Traitor wins

	Actor	System
1	User moves cursor to replay button and presses A	
2		Shows a video of all machines being destoyed

Alternative flow - Traitor loses		
	Actor	System
1	User moves cursor to replay button and presses A	
2		Shows a video of all machines being destoyed. Ends with showing how traitor is caught

UC: Continue to Main Menu		
Summary:	Returns to Main Menu	
Priority:	High	
Extends:	End Screen	
Includes:		
Participators:	Players(All)	

Normal Flow - Traitor wins		
	Actor	System
1	User moves cursor to "continue to main menu" button button and presses A	
2		Returns to Main Menu

UC: Show Controller Connection Lost Menu		
Summary:	Shows up when a controller is disconnected during game	
Priority:	Low	
Extends:	Game	
Includes:	Hide Controller Connection Lost Menu, Exit to Main Menu	
Participators:	Players(All)	
Normal Flow		
	Actor	System
1	A controller disconnects	
2		Pauses game and displays connection lost modal.
UC: Hide Controller Conntection Lost Menu		
Summary:	Shows a replay of the game. All machines being destroyed and ends with showing how the traitor is caught if he was.	
Priority:	Low	
Extends:	Controller connection lost menu	
Includes:		
Participators:	Players(All)	

Normal Flow - Controller Reconnected		
	Actor	System
1	User reconnects controller	
2		Hide modal and continue game
Alternative flow - Continue without player		
	Actor	System
1	User presses continue without player button	
2		Removes player from game and starts it again

UC: Exit to Main Menu

Summary:	Returns to Main Menu	
Priority:	Low	
Extends:	Controller connection lost menu	
Includes:		
Participators:	Players(All)	

Normal Flow

	Actor	System
1	User presses Main Menu button	
2		Returns to Main Menu

4 Domain model
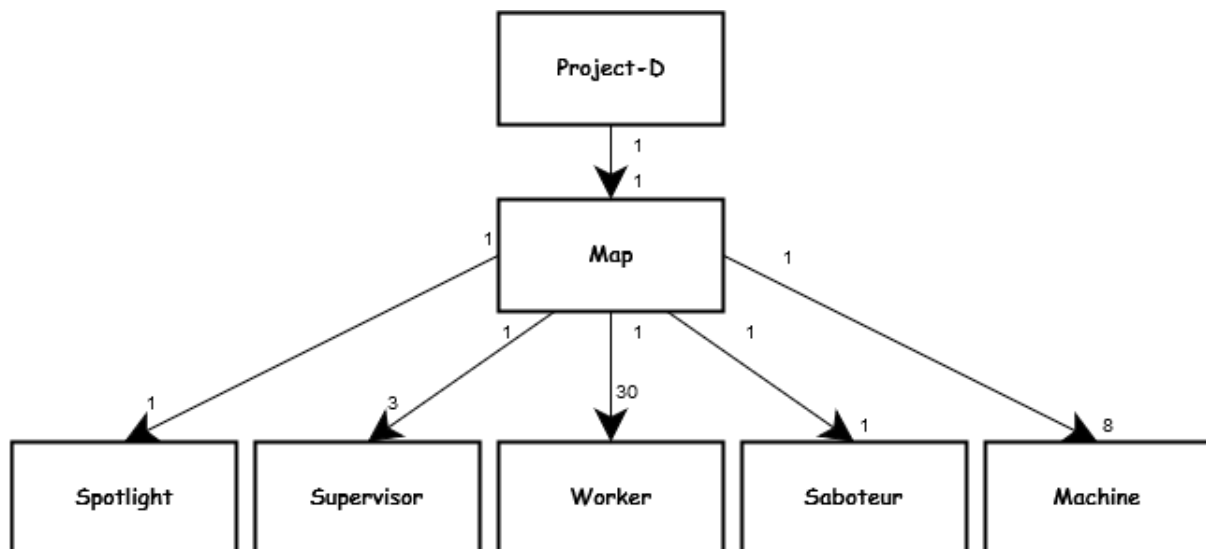
4.1 Class responsibilities

Project-D: This is the main class. It's only responsibility is to tie everything together and run the game.

Map: The map is supposed to hold all of the graphical objects and define what the level looks like and what should be rendered and where it is possible to go and be in the game.

Spotlight: As explained above in chapter 1.2.

Supervisors: As explained above in chapter 1.2.
Is responsible for the honest interaction methods and all the functions that are used to sabotage the factory. Is a playable character.

Saboteur: As explained above in chapter 1.2.
Is responsible for the dishonest interaction methods and all the functions that are used to sabotage the factory. Is a playable character.

Machine: As explained above in chapter 1.2.
Are needed as a goal/objective for both the supervisors and saboteur.

Worker: As explained above in chapter 1.2.

5 References

Hidden in Plain Sight: http://store.steampowered.com/app/303590/"