



PROJECT INITIATION

Q U A R T E R D E C K

Thursday, December 10

2:00 p.m.

Central Conference Room

Q u a r t e r D e c k

Project Initiation

Prepared by:

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December, 1987

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Illustrations will be available at the meeting on
Thursday, December 10, 1987

Q u a r t e r D e c k

Project Initiation

Project Team

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Contents

Introduction	1
Swordplay Description	3
Gameplay Description	5
Story	5
Object	5
Moment-to-Moment Gameplay	5
Money	6
Stage Descriptions	7
Pirate Ship Stage	7
Castle Stage	8
School Stage	8
Viking Ship Stage	8
Coliseum Stage	8
Space Ship Stage	9
Other Stages	9
Audio Needs	10
Background Music	10
Voice	10
Sound Effects	10
Hardware Needs	11
Graphics Usage Calculations	12
Motion Object Calculations	12
Playfield Calculations	12
Cost Estimate	13
Proposed Schedule	14

Introduction

Quarter Deck is an upright video game that two players may play at the same time. The players will see their characters from a side view perspective. The character will be one third of the height of the screen. The larger character size will allow for detailed animation as well as a closeup view of the moment-to-moment action. The larger character size may also cause some gameplay problems as it does in Double Dragon. When two players are playing with several enemies attacking, the screen gets overcrowded. Quarter Deck will attempt to keep the overcrowding to a minimum.

The backgrounds will look like theater stages viewed from the upper balcony as in Figure 1. The perspective will be a combination of two isometric views, so that there is no need for the characters to change size as they move further back on the stage.

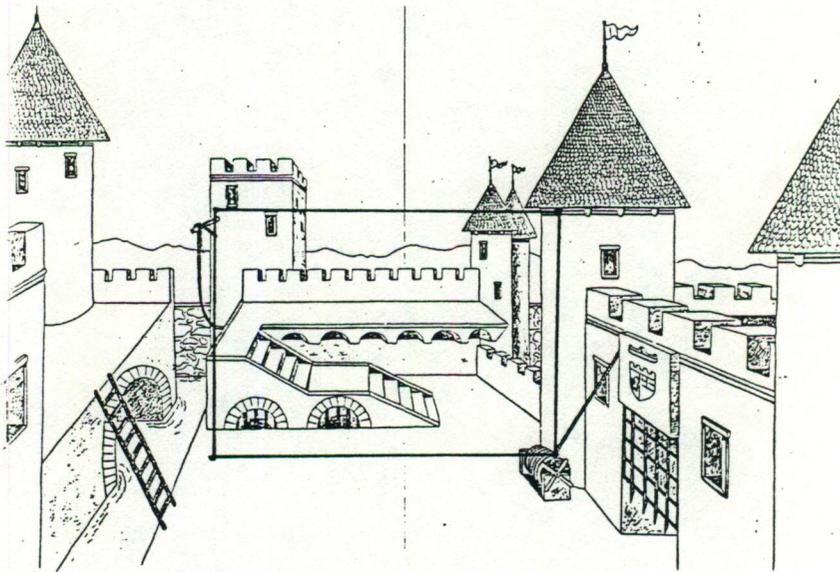


Figure 1. Castle Stage for Quarter Deck. This picture shows the approximate perspective to be used for the game's backgrounds, as well as the approximate relative screen size.

The perspective of Quarter Deck is similar to that of Taito's Double Dragon. The similarity is good because there is an established understanding of the perspective, even though it is not complex. The similarity is bad because Taito

might think we are stealing from them. However, only the perspective is similar. This game is not a street fight game, it is a sword fight game that requires a completely new set of skills.

Each stage will be a maximum of two screens tall, and four screens wide. Only part of the stage will be seen at one time. The screen (like a camera) will follow the character as it moves on the stage. For two players the screen will follow the center of mass of the two characters.

The gameplay will be based on swashbuckling sword fights, like **Robin Hood** and **The Three Musketeers**. While most of the villains will be defeated with swordplay, it will be important that the player also use the stage props to help kill the villain and enemies.

This proposal will present descriptions of swordplay, gameplay and stages. Also the audio and hardware needs will be discussed. Graphics calculations, estimated cost and a proposed schedule will also be presented.

Swordplay Description

A joystick for each player will control his character's motion on the screen. Pushing right or left on the joystick will move the character right or left respectively. If the player pushes up on the joystick, the character will move towards the back of the stage. Pushing down on the joystick will move the character towards the front of the stage.

Each player will have one sword button and one turn around button. Both buttons pressed simultaneously will make his character jump. Refer to Table I to see descriptions of actions.

Table I
Swordplay Descriptions

Joystick movement	Sword action button	Character action
Defense:		
backward or none	first button press	parry up
	second button press	parry down
Offense:		
forward	first button press	lunge straight
	second button press	lunge high
	third button press	lunge low
Combinations:		
backward or none	press and hold	parry up
forward		lunge low
Option to offense or defense or ...		
sweep		disarm enemy
or		
press turn around button		attack behind

The sword button will activate a sword action which will depend on the direction the player is moving at the moment. For instance, if the player is backing up or is standing still, then the sword action would be a defensive move up or down. Repeatedly pressing the sword action button would switch the sword position from up to down, or vice versa. The movement of the sword from up to down or from down to up will block a straight forward lunge from an attacker. If the character is moving forward when the sword button is pressed, then the sword action would be a straight forward lunge. If the player keeps the joystick in the forward direction and repeatedly presses the sword action button, then the character will switch between a high and low lunge. To do a straight

forward lunge again the player must stop moving forward, stop pressing the button, and then move forward and then press the sword action button.

Once the sword action is started, if the player changes the direction of the joystick, then the character will smoothly change animation to get to the new action intended. One fight mode will be to press and hold the sword action button, while moving the joystick from a backup or still position to a forward position. This movement will result in the character alternating between and defensive parry and an offensive lunge.

Also some more tricky manuevers are possible. Two such moves are a move to disarm the villian or enemy and a move to attack someone behind the character. The villain or enemy will try to recover his weapon after he is disarmed. The more tricky manuevers will be a combination of joystick and button actions after the sword action is started.

Gameplay Description

Story

The two players' characters in the game are pirates, named Patch and Peg. Patch and Peg have pet parrots, named Goldie and Polly, to help them through the game and add comic relief.

Patch and Peg were attacking and looting ships as usual when they attempted to attack a powerful wizard's ship. The wizard decides not to kill them, but rather to play with Patch and Peg. The wizard creates an illusion around Patch and Peg with their parrots. The illusion was that of being in another place and time. The wizard challenged Patch and Peg, "Destroy the villains I challenge you with and I will return you to your ship." **NOTE:** See Pirate Ship Stage on page 7 for a description of game graphics.

Object

The object of Quarter Deck is to return Patch and Peg to their own ship. After they destroy all of the villains on the stage they will be placed in a new place and time. Eventually, they will return to their own ship and time. After a bonus round on their own pirate ship, the wizard will again force Patch and Peg to fight their way through other places and times. Each bonus round will be separated by a sequence of places and times. Some sequences will be short and others long.

Moment-to-Moment Gameplay

The moment-to-moment gameplay will involve the players' characters in swashbuckling action like that of Errol Flynn in **Robin Hood**, or Gene Kelly in **The Three Musketeers**. The players will be able to move around the stage and swing their swords in offense or defense. More advanced players can learn to use the joystick with the buttons (like Double Dragon) to make their character perform more complex moves. The players will also trigger some automatic complex maneuvers in a high risk situation. So by taking a chance jumping into a crowd of enemies the player may receive not only bonus points, but also a visually exciting maneuver. The more complex moves will aid the player in defeating enemies and villains. The excitement will be in the action of the sword fights, and the use of the stage props.

Also the players will be able to pick up weapons that enemies have dropped, and use them instead of, or with their own sabre. The temporary weapon will not change stages with the player's character. The player's character will not

retain the temporary weapon from stage to stage.

The parrots will be an important part of the moment-to-moment gameplay. The parrots will heighten the emotions of the players. At moments when the player's character is being attacked from behind, the parrot for that player will flutter and try to warn the player. At more relaxed times during the game, the parrot will make comedic remarks. When a player's character is in the middle of a fierce battle, then the parrot might flutter around and "freak out," or try to help the player by distracting the enemies.

Money

Coins will buy life just as coins purchased health in Gauntlet. There will be no actual credits. Each coin, inserted at any point in the game, will purchase an amount of life. The player may build up as much life as he wishes simply by adding coins. Life equals how many hits he can take before his game ends. The player will be able to continue from where he died as if he had put in the money before he died.

Life is increased as a function of how much life a villain or enemy, or animal has when it is destroyed. In the case of two players attacking a single enemy or villain, the player who makes the fatal blow gets the life.

Life is decreased by damage to the player's character. A player's character is damaged when he is hit by a villain or enemy's weapon, or attacked by one of the animals, or becomes a victim of one of the stage props. Since the passing of time will not decrease a player's life the game will introduce enemies to keep the player from stalling.

This game will try to get players to use their coins in a similar fashion to the way Gauntlet did. Some players put in a lot of coins to start, and some only put in one at a time. There was no advantage to either. Players somehow perceived that by putting in lots of coins in the beginning of a game that they had some advantage over the game. We will let the players believe they have an advantage, and they will not notice the loss of each coin as much as when they put in one coin at a time.

Stage Descriptions

There will be several stages where the characters will be challenged before returning to their own ship for the bonus round. Each stage will have its own villain(s), enemies, animals, and props. The enemies and animals are there to increase difficulty and break the player's concentration. The props are used by the player to help destroy any villains, enemies or animals, but some props will be dangerous to the player as well. At different levels the same stage may have different combinations of villains, enemies, animals, props.

In each stage, the players must destroy the villain or villains to progress to the next stage. The number of villains and enemies on each stage will be determined by the number of players and the difficulty. Each villain will have his own fighting style that the player must learn how to defend against as well as defeat. There will be several ways for the players to destroy the villain(s) on a particular stage. The player will always be able to use his own sword as well as using the props available on the stage. The player can gain more life by using a stage prop to destroy the villains, enemies, and animals with more life.

At the beginning of a level, the players will be placed a some point on the stage. They will then have to search out the villain or villains in order to destroy him or them in order to progress. In the process of searching out the villains, the player will have to fight the enemies, and animals, as well as watching out for props that are player traps.

Pirate Ship Stage

The Pirate Ship Stage will serve as the Bonus Round Stage and the Start of Game Stage. At the start of the game the players' characters will be seen on the ship. Then, the ship screen will disintegrate (fade) while an evil wizard face appears and laughs. The scene will then change to the first stage. (Castle Stage)

The Bonus Round Stage will also be played on this stage after the players have played a certain number (3-7) of the other stages. The number of stages between bonus rounds will be determined by difficulty.

In a one player game, the bonus round will consist of the player running around and skewering as many idiot-type enemies as possible within a given time. The player will receive life and score bonus for each of the enemies he has skewered. In a two player game, the bonus round will start with the one player bonus round. Then, the two players will be asked to fight each other for a limited time(20 seconds). As the fight progresses, the player who receives a hit loses life,

while the player who successfully hit the other player gains life. The player who gains the most life will be the winner, and receive a bonus score. In both the one and two player games, a player may die in the bonus round.

There will be a few props on the pirate ship such as sails, barrels, cannons, rope, jugs, and hatch doors.

Castle Stage

The main villain in the Castle Stage will be a Knight. The Knight will have a lance, armor, a horse with armor, and his two-edged sword. Early in the game, the Knight will be on foot. As the game progresses, the knight he will be on his horse, and then also have a lance. When the Knight is on his horse, the player will need to dismount the Knight from his horse in order to kill him.

The Knight's helpers will be squires with daggers. The squires will throw the daggers, but the players will be able to deflect the daggers with their character's sword.

The stage will be set on the rooftop of the Knight's castle. Props will include a gate with rope pulley, a swing rope, a ladder, and a moat.

Training School Stage

The Training School Stage has a Samurai warrior as the main villain. The Samurai warrior will have two swords; short and long. In the easier levels, he will only use his long sword, but later in the game he will use his short sword also.

The Samurai's helpers will be ninjas with throwing stars. The player may use his character's sword to deflect the throwing stars, and to kill the ninjas.

This stage will be set in the Samarui's training center with training school props.

Viking Ship Stage

A Viking will be the main villain in the Viking Ship Stage. The Viking will have a two-handed broad sword sometimes and a double bladed axe at other times.

The Viking's helpers will be warriors.

The stage will be set on the Viking's ship, with props such as long oars, benches, and sails.

Coliseum Stage

The Coliseum Stage will use a Gladiator as the villain. The Gladiator will have a mace, an axe, a net, and various other weapons available to him.

Large animals such as lions and tigers and bears (oh my!) will help the Gladiator. Only one type will be used; either lions, tigers, or bears.

The stage will be set in a coliseum, with props like one would expect to find in a old Roman coliseum.

Space Ship Stage

In the Space Ship Stage the Future Knight will be the lead villain. The Future Knight will have some similarity to Darth Vader. He will not look exactly like Vader, but will have the same dark ominous look. He will have an electric/laser sword.

The Future Knight's helpers will be like storm troopers using laser pistols to attack the player's character. The player will use his character's sword to deflect the laser blasts.

The stage will be a high-tech space ship interior, with props being the parts of the futuristic space ship interior.

Other Stage Ideas

Bullfight Stage

Jason and the Argonauts vs. Skeleton Men

Western

Animal Planet

Audio Needs

The sound for this game will be mostly background music and voice with a few sound effects.

Background Music

The background music will be set to each stage. Every time you see a particular stage, the music will be the same. We will use an intelligent music driver so that when the action picks up, the music will change, and likewise when the action slows, the music will change again.

Voice

Voice will be used in this game quite a bit. The players will grunt and scream while fights occur. The parrots will often be squawking and talking. The villains will also threaten the player verbally; challenging him and making him mad. The wizard will also talk to the players.

Sound Effects

The sound effects will be limited to weapon clashes, and props being used.

Hardware Needs

The purpose of the hardware in this game is to bring to life the action of the stage like a movie would. The animation and graphics of the characters is most important, so large 32-color and double horizontal resolution (Blasteroids style) motion objects will be used. The stages require that the objects be able to move in front of and behind objects in the playfield, so a motion object to playfield priority scheme is necessary. Also the stages require more than 4096 stamps plus 8 palettes at one time, so a 24-bit playfield specifier is also necessary.

We presently have no hardware that does all of this in one package, so a new hardware will be necessary to capture the motion object circuitry of Blasteroids with an added bit depth, and a 24-bit wide playfield specifier. A modified version of the ROMALOT hardware will be used, since it is the closest hardware system to what is needed.

A medium resolution monitor with a standard chasis will be used so that the double resolution detail used for the large characters is made visible. It is more important in this game than it was in Blasteroids because we will be using human figures with details in different colors. Blasteroids did not need the definition between one color intensity changes from the digitized pictures.

Graphics Calculations

Quarter Deck will use a large amount of graphics because of the size of the characters. The characters will be ten stamps tall. The characters will also be split at the waist, for the purpose of saving graphics. Quite often the lower body will be still while the upper body swings the sword, so only the upper body will need to animate.

Motion Object Calculations

Lead characters

Upper body

2 char. x 2 dir. x 16 animations x 7 wide x 5 high = 2,240 stamps

Lower Body

2 char. x 2 dir. x 16 animations x 6 wide x 5 high = 1,920

Weapons

6 types x 2 dir. x 8 animations x 2 wide x 4 high = 768

Parrots

1 char. x 2 dir. x 5 animations x 2 wide x 2 high = 40

Villains

Upper body

6 char. x 2 dir. x 16 animations x 7 wide x 5 high = 6,720

Lower Body

6 char. x 2 dir. x 8 animations x 6 wide x 5 high = 2,880

Enemies

6 char. x 1 dir. x 8 animations x 5 wide x 8 high = 2,304

Animals

12 char. x 2 dir. x 4 animations x 4 wide x 4 high = 1,536

Props

12 props x 1 dir. x 3 animations x 5 wide x 5 high = 900

Total..... 19,308 stamps

With double horizontal resolution the motion object graphics double to 38,616 stamps. Reduction will change this number of stamps to less than 32,768. In 27512 EPROMs, 32,768 stamps is 16 EPROMS. With 5 bits deep, we need to add 25% in EPROM space, which is 20 EPROMS or 10 1 Meg ROMS.

Playfield Calculations

Each stage (average size)

(3 wide x 2 tall x (1 screen = 42 wide x 30 high)) = 7,560 stamps

Total for 6 stages 45,260 stamps

With horizontal flip in the playfield and normal reduction the 45,260 stamps can be reduced to less than 32,768 which is 16 27512 EPROMs or 8 1 Meg ROMS.

Cost Estimate

ELECTRONICS

New main PCB (4 layer PCB @\$??)	160.00
Program EPROM (4 27512-3 @\$6.75)	27.00
Alphanumerics EPROM (1 2764-2 @1.50)	1.50
Audio PCB (with TI, no POKEY, 27512-3 @6.75)	75.00
* 1 Meg ROMs for 2500 build, @\$3000/CODE, with 2500 minimum @\$4/ROM	
* \$13,000/2500 ROMs = \$5.20/ROM	
Playfield ROMs (10 1Meg @5.20)	52.00
Motion Object ROMs (8 1Meg @\$5.20)	41.60
Sub-total	\$ 357.10

CABINET

Power supply	52.00
Monitor (medium res. tube with standard res. chasis) .	235.00
Coin door, cash box, coin counter	45.00
Cabinet	160.00
Attract plex (\$4.50), decal (\$3.60)	8.10
Fluorescent Light	10.00
Speakers (2)	8.00
Speaker grill	5.25
Air vent grill	3.25
Side panel artwork	10.00
Monitor plex	10.00
Monitor bezel	4.00
Controls (2 joysticks @\$7 and 4 buttons)	18.00
Control panel (\$9), decal (\$5)	14.00
Control panel harness	10.00
Main harnesses	24.00
Power cord and on/off switch	5.00
Labels	1.00
Instructions and manual	4.00
Shipping Container	15.00
Misc. hardware	10.00
Sub-total	\$ 651.60

MATERIAL COST

\$1008.70

LABOR AND OVERHEAD

Direct Labor	27.00
Variable Overhead	67.00
Fixed Overhead	180.00
Sub-total.....	\$ 274.00

TOTAL COST

\$1282.10

Proposed Schedule

	Time	Scheduled
<hr style="border-top: 1px dashed black;"/>		
1) Project initiation		
* Complete initiation	2-3 wks	12/10/87
2) Software startup (Using BLASTEROIDS hardware)		12/11/87
* Initialization	1 day	
* Database design for stages	2 days	
* Design Castle Stage	3 days	
* Database setup for Castle	3 days	
* Move player's character	3 days	
* Swordplay action	5 days	
* Collisions	5 days	
* Vacation, sick, holidays	2 days	

	24 days	
3) Engineering startup		12/11/87
* Test mod Romalot for Pat	21 days	
* Start main PCB layout		1/15/88
* Complete main PCB layout	30 days	3/ 1/88

	51 days	
4) Animation startup		12/11/87
* Castle background	3 days	
* Player character	5 days	

	8 days	
5) 1st Review (swordplay only) *****		2/ 1/88

Proposed Schedule(continued)

	Time	Scheduled
<hr style="border-top: 1px dashed black;"/>		
6) Continue software development		2/ 2/88
* 1st review changes	5 days	
* Convert to modified ROMALOT	5 days	
* Castle props	8 days	
* Knight	10 days	
* Squires	3 days	
* Bats	1 day	
* Rats	1 day	
* Damage player	1 day	
* Destroy villains	1 day	
* Destroy enemies	1 day	
* Destroy animals	1 day	
* Parrot intelligence	3 day	
* Misc.	3 days	
* Vacation, sick, holidays	4 days	

	42 days	(21 days for two programmers)
7) Continue engineering		3/ 2/88
* Prototype PCBs arrive	10 days	3/15/88
* Stuffed and tested	5 days	3/22/88

	15 days	
8) Continue animation		2/ 2/88
* Finish Castle background	2 days	
* Finish 1st character pictures	5 days	
* Knight pictures	2 days	
* Squire pictures	1 day	
* Bat pictures	1 day	
* Rat pictures	1 day	
* Props pictures	5 days	

	17 days	
9) 2nd Review *****		3/15/88

Proposed Schedule(continued)

	Time	Scheduled
<hr style="border-top: 1px dashed black;"/>		
10) Continue software development		3/16/88
* 2nd review changes	5 days	
* Debug New PCB	3 days	
* Convert to New PCB	5 days	
* Initial stats display	1 day	
* Start game	1 day	
* End of game	1 day	
* Design School Stage	3 days	
* Database setup for School	3 days	
* School props	8 days	
* Samurai	10 days	
* Ninjas	3 days	
* Birds	1 day	
* Scorpions	1 day	
* Design Viking Stage	3 days	
* Database setup for Viking	3 days	
* Viking props	8 days	
* Viking	10 days	
* Warriors	3 days	
* Crows	1 day	
* Rats	1 day	
* Stage transitions	3 days	
* Install new graphics & colors	3 days	
* Animation for graphics	2 days	
* Install new sounds	2 days	
* Reduce CPU time used	2 days	
* Scoring	1 day	
* Misc.	3 days	
* Vacation, sick,holidays	8 days	

	98 days	(49 days for two programmers)
11) Sound startup		3/16/88
* Player sounds	2 days	
* Sword clash sounds	1 day	
* Villain sounds	5 days	
* Parrot sounds	10 days	
* Misc. sound effects	3 days	

	21 days	

Proposed Schedule(continued)

	Time	Scheduled
<hr style="border-top: 1px dashed black;"/>		
12) Continue animation		3/16/88
* Second character pictures	10 days	
* School background	5 days	
* School prop pictures	5 days	
* Samurai pictures	5 days	
* Ninja pictures	3 days	
* Viking background	5 days	
* Viking prop pictures	5 days	
* Viking pictures	5 days	
* Warrior pictures	3 days	
* Animal pictures	2 days	
* Misc.	3 days	

	51 days	
13) Focus *****		6/ 1/87

Proposed Schedule(continued)

	Time	Scheduled
<hr style="border-top: 1px dashed black;"/>		
14) Continue software development		6/ 2/88
* Focus changes	5 days	
* Design Pirate Ship Stage	3 days	
* Database setup for Pirate	3 days	
* Pirate Ship props	8 days	
* Pirates	10 days	
* Design Coliseum Stage	3 days	
* Database setup for Coliseum	3 days	
* Coliseum props	8 days	
* Gladiator	10 days	
* Large animals	3 days	
* Hawks	1 day	
* Snakes	1 day	
* Design Space Ship Stage	3 days	
* Database setup for Space	3 days	
* Space Ship props	8 days	
* Future Knight	10 days	
* Future squires	3 days	
* Hawks	1 day	
* Rats	1 day	
* Other Stage	29 days	
* Coin routines	3 days	
* High score table and entry	2 days	
* Attract mode	5 days	
* Misc.	4 days	

	130 days	(65 days for two programmers)
15) Continue sound		6/ 2/88
* Castle background music	5 days	
* School background music	5 days	
* Viking Ship background music	5 days	
* Pirate Ship background music	5 days	
* Coliseum background music	5 days	
* Space Ship background music	5 days	
* Title screen theme	5 days	
* Transition music	5 days	
* Misc. sound effects	5 days	

	45 days	

Proposed Schedule(continued)

	Time	Scheduled
<hr style="border-top: 1px dashed black;"/>		
16) Continue animation		6/ 2/88
* Pirate Ship background	5 days	
* Pirate Ship prop pictures	5 days	
* Pirate pictures	5 days	
* Coliseum background	5 days	
* Coliseum prop pictures	5 days	
* Gladiator pictures	5 days	
* Large animal pictures	3 days	
* Space Ship background	5 days	
* Space Ship prop pictures	5 days	
* Future Knight pictures	5 days	
* Future squires pictures	3 days	
* Animal pictures	2 days	
* Title screen	5 days	
* Misc.	5 days	

	63 days	
17) 3rd Review *****		9/ 1/88
18) Continue software development		9/ 2/88
* 3rd Review changes	5 days	
* Complete animation	5 days	
* Make audio interact with play	5 days	
* Tune waves	10 days	
* Misc.	5 days	

	30 days	
19) Field Test *****		10/ 1/88
20) Product Release *****		11/15/88
21) Finished Goods *****		1/ 1/89

