Raspgierry Pi 3 - Brick Game
Vision of the project

Version <1.3>

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Revision History

Date	Version	Reason For Changes	Author
2019/03/24	1.0	Creation of the vision of a project	Jakub Gros
2019/03/25	1.1	Creation of the scope of a project	Mateusz Olejarz
2019/03/26	1.2	Review and edition	Sebastian Kucharzyk
2019/03/31	1.3	Creation of the SRS	Mateusz Olejarz
	1.4	Review and edition	

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Vision and a scope of the project

1. Introduction

The vision of the project is the first stage of the project, aimed at developing the concept of the "Raspgierry Pi 3 – brick game" project and estimating the potential scope of the project, the budget of the project and the time of its implementation. This document is about a design of the device, which thanks to components such as Raspberry Pi 3B +, joystick and a TFT display, will enable playing Galaxian, Racing and Snake.

1.1. The goal of the project

The purpose of this document, hereinafter referred to as Vision and the scope of the project, is to present the main objectives of the "Raspgierry Pi 3 Game Console" project. The document clearly, consistently and concisely outlines the users' requirements and system functionalities that meet these requirements.

1.2. The scope of the project

The scope of the document currently includes discussing the project and presenting the client's benefits and business goals.

1.3. Definitions, acronyms, abbreviations

User – anyone who uses the device.
Device – game console created with Raspberry Pi 3B +, joystick and a TFT display.
Game – one of the games available on the console, Galaxian, Racing or Snake.
Galaxian – a game of shooting down enemy ships.
Snake – a game consisting of collecting points as a snake and avoiding collision with your own body.
Racing – a game that involves driving forward and avoiding obstacles.
Team – a team carrying out the project.

1.4. Connected documents

1.4.1. Class diagram.
1.4.2. Use case diagram.

1.5. The structure of the document

The entire document currently consists of two parts. The first part - introduction - defines the purpose of the Project Vision and Scope, as well as the organization of this document. The second part presents the assumptions of the project, business goals, problem descriptions and product position statement.

2. Project assumptions

2.1. Business goals

Customers who want to use the console have the following options:
- Easy way to start the app
- See scores
- Choose a difficulty level
- Choose the game
- Pause the game
- Save the game

The project's business objectives set for 2019:
- Completion of the project before May 27, 2019
- Presentation of the finished device at the Science Festival in Krakow
- Gaining regular customers
- Providing information about the console using a website hosted with github.io
- Achievement of results and image allowing the sale of the product in 2019

After the deployment of the project, the client will have the opportunity to:
- See scores
- Choose a game and its difficulty level
- Pause and save the game
- See documentation and info about project on website

2.2. Description of the problem/need

Need	Completion of a product of good quality in time
Involve	Software Developer, Hardware Developer
Importance	Priority
A thoughtful solution would be	Order necessary parts of the device in a timely manner, giving time for their assembly and programming

Need	Achieve good grades
Involve	Software Developer, Hardware Developer
Importance	High
A thoughtful solution would be	Timely delivery of individual parts of the project and correct implementation

Need	Establishing a good image of the project
Involve	Product Owner
Importance	High
A thoughtful solution would be	Create a website describing the project and presenting news

Need	The interest of the product of potential buyers
Involve	Product Owner
Importance	Avarage
A thoughtful solution would be	Creating a good image of the project team and a modern, efficient device that achieves good results

2.3. Product Position Statement

For	Players returning to old games
Who/What	Among the players, there is often a nostalgic desire to return to childhood games. Available (before creation of the Brick Game on a Raspberry Pi 3) console options: • Play selected games on several levels of difficulty • Sound on/off delection • Auto-power-off
Product name	Brick Game on a Raspberry Pi 3
Such that	• The number of people interested in purchasing a console will increase • The project will arouse enthusiasm among the participants of the Festival of Sciences
In contrast to	Brick Game E-9999
Our product	Brick Game on a Raspberry Pi 3 distinguishes from the competition: • Ability to save the game • Website providing information about the project and user manual • The ability to view the scores in individual games • Better graphics in retro style

3. Shareholders and users

3.1. Shareholders

Name	Description	Responsibilities
Product owner	The person owning the product	• Tracking progress when creating the application • Ensure avoid leaking sensitive data • Defining basic requirements
Project coordinator	The person responsible for the timely implementation of the project and quality control	• Collecting information about progress • Assigning tasks • Supervises compliance with deadlines
PR manager	The person responsible for contact with the client.	• Communication with the client • Specifies the requirements of users • Coordinate testing and surveys on target users
Marketing Manager	The person responsible for the advertising of the project	• Creates ads • Provides the product website
Hardware Developer	Works on the hardware side of the project	• Acquisition of reliable subassemblies • Assembling the device
Software Developer	Works on the software side of the project	• Implements the system
Designer	The person responsible for the design	• Creation of UI and graphics for games • Web page desing
Tester	Carries out verification and validation of software, checks for fault tolerance	• Searching for mistakes • Carrying out verification and validation

3.2. Users

Name	Description	Responsibilities	Shareholder
Admin	Manages the system and is responsible for its smooth operation.	• System management • Modifying users and their statistics • Changing textures and sound samples	Product owner
Gamer	A person who wants to play retro games such as Snake		PR manager
Potential buyer	A person interested in the product and looking for information about it		PR manager

3.3. User environment

The device can be used independently, from anywhere. The device is handheld, it only needs access to the electrical outlet. The time of activity depends only on the user, he can pause or save the game at any time and return to it later.

3.4. Shareholders profiles

3.4.1. Product owner

Representative	Sebastian Kucharzyk
Description	An important shareholder, conditioning the approval of the entire project.
Type	A person with an idea and budget to accomplish it
Responsibility	• Tracking progress when creating the application • Ensure avoid leaking sensitive data • Defining basic requirements • Approve the budget
Success factors	Acquiring a good product that will gain interest in the market
Engagement	One of the most involved people, monitors the development of the entire project.
Products	
Comments and issues	The selection of bad contractors can be fatal

3.4.2. Project coordinator

Representative	Sebastian Kucharzyk
Description	Shareholder conditioning the approval of the project stages.
Type	A person with charisma and appropriate skills for efficient team management.
Responsibility	• Collecting information about progress • Assigning tasks • Supervises compliance with deadlines
Success factors	The success for this shareholder is timely bringing the project to the end, achieving business goals.
Engagement	One of the most involved people, monitors the development of the entire project.
Products	Creates a scrum board for other project contractors.
Comments and issues	Incorrect part of the work of other shareholders may be the problem.

3.4.3. PR manager

Representative	Mateusz Olejarz
Description	Consults the final look of the game with users.
Type	A person with extensive experience regarding the usability of information systems and the creation of usability tests.
Responsibility	• Communication with the client • Specifies the requirements of users • Coordinate testing and surveys on target users
Success factors	Successful adjust to the needs and requests of players.
Engagement	Requires constant commitment and cooperation with users.
Products	Functional requirements
Comments and issues	

3.4.4. Marketing Manager

Representative	Mateusz Olejarz
Description	Seeks to interest the largest number of people of the game.
Type	A person educated in the fields of website development and marketing.
Responsibility	• Creates ads • Provides the product website
Success factors	Getting a lot of interest of the product
Engagement	Average commitment, limited to the creation of ads and website
Products	Web page, adverts
Comments and issues	

3.4.5. Hardware Developer

Representative	Sebastian Kucharzyk
Description	Deals with the selection of parts of the device and their assembly
Type	A person well acquainted with electronics and machine making.
Responsibility	• Acquisition of reliable subassemblies • Assembling the device
Success factors	Creation of a working device
Engagement	Big involvement at the beginning of work on the project
Products	Working device
Comments and issues	The quality of the device depends on the budget

3.4.6. Software Developer

Representative	Jakub Gros
Description	Deals with the implementation of menu and games
Type	A person with good knowledge of Python and creating clean code.
Responsibility	• Implementing the system
Success factors	Creating an efficient and optimal system
Engagement	The biggest commitment, the quality of the final product depends mainly on this position.
Products	Efficient system
Comments and issues	

3.4.7. Designer

Representative	Mateusz Olejarz
Description	Designs user interface, game graphics and website
Type	A person with a good sense of aesthetics, able to design and create graphics
Responsibility	• Creation of UI and graphics for games • Design of the web page
Success factors	Creating good quality graphics and layouts, which will be appreciated by both players and the management
Engagement	Big involvement at the beginning of the project, little while creating web page
Products	Graphics, Web page layout
Comments and issues	

3.4.8. Tester

Representative	Jakub Gros
Description	Checks the correctness of all functions and the entire system
Type	A person familiar with the Unit tests and testing methods
Responsibility	Makes sure that the product does not have any errors.
Success factors	Product free of errors
Engagement	Big commitment after each segment of work
Products	Unit tests
Comments and issues	

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3.5. Users profiles

3.5.1. Gamer

Representative	PR Manager representative, Mateusz Olejarz
Description	A person who wants to play the game
Type	It can be any user, that's why we assume little technical knowledge.
Responsibility	The user expects to be able to play without any problems.
Success factors	The success for this user will be a gameplay without errors with the ability to save and pause
Engagement	The role of this user is to test the finished product.
Products	Feedback
Comments and issues	

3.5.2. Potential buyer

Representative	PR Manager representative, Mateusz Olejarz
Description	A person who wants to devote his free time to games
Type	It can be any user, even a person who has not previously dealt with this type of devices.
Responsibility	Determines if the product encourages him
Success factors	Interest in the product
Engagement	Brings profit for the company
Products	
Comments and issues	A subjective user approach may have a negative impact on project evaluation and test results, but a sufficient number of representative users should overcome or even remove this aspect.

3.5.3. Admin

Representative	Product Owner representative, Sebastian Kucharzyk
Description	Person managing the current console settings
Type	A person with access to source code, user accounts and resources
Responsibility	• System management • Modifying users and their statistics • Changing textures and sound samples
Success factors	Adapting to the needs of players
Engagement	Regular maintenance of the system
Products	
Comments and issues	

3.6. Major participants or client's needs

Need	Priority	Concerns	Existing solution	Suggested solution
Establishing a good image of the project	1	Lack of company recognition	Creating a product considering mainly earnings	Creating a product focusing primarily on gaining players' sympathy
Meet the client's expectations	2	Different tastes of users	Attempts to adapt to everyone creating something in-between.	Create a product that appeals to as many people as possible
Earning on the product	3	Future development of the company	Putting everything on one project	Limit budget to be able to take on another project in case of failure

3.7. Alternatives and competition

Because there are competitive solutions on the market, shareholders have two options:

• Buying a product of a competition

The advantage is the use of a stable and proven by the market product, offering similar services in the field of playability. However, products already available on the market, however, lack the renewal of graphics , the ability to save the game and to see the results saved from previous game sessions. This state has not changed for years, so it does not appear to be a competition for our project.

- Creation of a new product
The advantage is the creation of a new product that allows you to raise the prestige of the entire team and introduction of the innovative solutions for old games to the market, thanks to which players will be able to return to old titles with nostalgia, having a retro style but not feeling the old age of the product. The disadvantage is the cost of producing such a device and the risk associated with the possible rejection by users of the new version of the console.

Keeping the existing situation is not an option, because this does not generate any profits.

4. Limitations

Game Brick requires permanent access to the electrical outlet, because it does not have a battery power. It must also be made before May 27 to present it at the Science Festival, which may involve a possible simplification of part of the requirements.

5. Quality requirements

The device created is aimed at gaining regular customers, so the product should be of the best quality, avoiding delays in its premiere and technical imperfections, such as errors. The device should be optimized to avoid jams and delays in responding to user requests. The games and the interface should work smoothly, while maintaining their retro character.

6. Priorities

1. Completion of a product of good quality in time
2. Achieve good grades
3. Establishing a good image of the project
4. The interest of the product of potential buyers and people at Science Festival 2019

7. Other requirements

7.1. Used standards

Clean code standards:
- PEP 8 - Python Enhancement Proposals

Operating system:
- Raspbian 4.14

Legal standards:
- UCC
- berne convention

Web page standards:
- W3C

7.2. System Requirements

There are no special system requirements, as they are met in advance when the device is purchased.

7.3. Performance requirements

The device should be able to operate one user at a time, as long as he wants. The response time to user's actions should be reduced to a minimum and never exceed 1 second.

7.4. The requirements relating to the working environment

In order for the device to operate, appropriate conditions such as a good operating temperature, 0–50°C, and a socket connection must be provided.

The device must be error proof and has an error handling, which is the task of the software and hardware developers.