 IN GAME VOICE INTERACTION

João Pedro Marques Pereira Ferreira

*Supervisor*

Alberto Manuel Brandão Simões

Project presented to

Instituto Politécnico do Cávado e do Ave to access the Masters degree in

Mestrado Engenharia em Desenvolvimento de Jogos Digitais:

*This work does not include the review made by the panel.*

Fevereiro, 2018

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abstract

The computer systems are increasingly more autonomous, more intelligent, with a much larger and more available processing capacity, creating a bigger connection with humans. The opportunity arises to rethink new forms of interaction applied in the game world.

We have all crossed paths with intelligent systems capable of guiding, advising and pointing us to the most appropriate direction, using only our voice as an interface. A GPS, a search engine, a reminder on the calendar. Example of these systems would be Siri (Apple), Alexa (Amazon), Google Assistant (Google), among others. These systems begin to appear on social platforms, services that with a database can clarify frequently asked questions without requiring the intervention of a human being in the process, the so-called ChatBots.

In a more oriented analysis of the video games world. The interfaces that the player uses in the game world, play a great role in the way the player experience the game. If we think of the various types of controls: command, keyboard/mouse, Guitar Hero, Wii remote, etc. the deduction becomes obvious. Interfaces play a crucial role in what the game offers to the player.

After doing these three analyses, it is easy to realize that when adding a personal assistant/Chatbot as a game interface, the possibilities of it increase and shape the way the player interacts with the game world.

The effects and possibilities of using these systems are still unexplored, due to the fact that there is currently no combination of the various systems.

The question I propose to answer with the elaboration of this thesis is: What will be necessary to include a personal assistant in a video game?

**Keywords:** Personal assistant, ChatBot, Interface, gaming experience.

Index

Contents

[abstract IV](#_Toc10739554)

[Index V](#_Toc10739555)

[Picture index V](#_Toc10739556)

[Table Index V](#_Toc10739557)

[Equation Index V](#_Toc10739558)

[1. Introduction 7](#_Toc10739559)

[1.1. Technology Background 7](#_Toc10739560)

[2 Technology observations 8](#_Toc10739561)

[2.1. Purpose and solution for a no problem 8](#_Toc10739563)

[2.2. Project Spectrum 8](#_Toc10739564)

[3. background 9](#_Toc10739565)

[3.1. AI 9](#_Toc10739566)

[3.2. User Interface 9](#_Toc10739567)

[3.3. Voice recognition 9](#_Toc10739568)

[3.3.1. Big players 9](#_Toc10739569)

[3.3.2. Major problems 9](#_Toc10739570)

[3.4. Chat-bot 9](#_Toc10739571)

[3.4.1. Big players 9](#_Toc10739572)

[3.4.2. Major problems 9](#_Toc10739573)

[3.5. Game engines 9](#_Toc10739574)

[4. Theory 10](#_Toc10739575)

[4.1. The problem explained to a first grade kid 10](#_Toc10739576)

[4.2. Impossible to solve 10](#_Toc10739577)

[5. Methodology 11](#_Toc10739578)

[5.1. Questionnaire 11](#_Toc10739579)

[5.2. users 11](#_Toc10739580)

[5.3. observation 11](#_Toc10739581)

[6. Development plan 12](#_Toc10739582)

[6.1. Preliminary study 12](#_Toc10739583)

[6.2. Implementation 12](#_Toc10739584)

[6.3. notice of results 12](#_Toc10739585)

[6.4. report 12](#_Toc10739586)

[7. Results 14](#_Toc10739587)

[7.1. Final solution 14](#_Toc10739588)

[7.2. Development chart 14](#_Toc10739589)

[7.3. Ease of use 14](#_Toc10739590)

[7.4. Problems 14](#_Toc10739591)

[8. Discussion 15](#_Toc10739592)

[8.1. Solution review 15](#_Toc10739593)

[8.1.1. final project vs original idea 15](#_Toc10739594)

[8.1.2. users feedback 15](#_Toc10739595)

[8.2. methodology 15](#_Toc10739596)

[8.2.1. used systems analysis 15](#_Toc10739597)

[8.2.2. alternative solutions 15](#_Toc10739598)

[8.3. future work 15](#_Toc10739599)

[9. Conclusion 16](#_Toc10739600)

[10. Bibliography 17](#_Toc10739601)

Picture index

Table Index

Equation Index

# Introduction

This thesis is a guide to assist game developers, game studios or any technology addict a glimpse of what interacting with video game using voice looks like. It is intended that alongside the presented project, the readers can see in first hand what a complementary voice system added to any video game can change the experience presented to the player, either in a bad or a good way, the challenges it brings and also the possibilities it opens.

The thesis is divided in four major parts:

I Technologies and today solutions

II Concept and theory

III Implementation

IV Results and analysis

In most of the parts the guide is break into two modules; Voice recognition and Chatbots, since this are the major technologies presented in the project.

## Technology Background

* + 1. Voice Recognition

In the 50’s (<https://bit.ly/2YMfudX> ) voice recognition took its first steps, it was called the ‘baby talk’ era, it allowed a computer to translate single numbers and letters into data. It evolved to understand words, then sentences, and the evolution was on how many words the system could comprehend. Then on the 90’s with faster processing capabilities the system allowed for a faster and more accurate translation. With todays processing capabilities, cloud computing and software as a service, is use swap from a form of software with specific use to a capability that is on any smartphone or pc and can help and react to a vast set of scenarios.

* + 1. Chatbots

# Technology observations

Aqui é para falar de soluções para problemas análogos



## Purpose and solution for a no problem

Porque desta solução e se é valido

## Project Spectrum

O que contem o projecto, o que é apresentavel e o que é acessório

# background

## AI

O que usam os sistemas de Voz para texto e texto para voz, o que usam os chatbots

## User Interface

Interfaces actuais, vantagens desvantagens

## Voice recognition

Soluções actuais com esta tecnologia, uso da mesma, validade

### Big players

Quais as maiores tecnologias que oferecem este tipo de solução

### Major problems

Quais as limitações e desvantagens já conhecidas

## Chat-bot

Soluções actuais com esta tecnologia, uso da mesma, validade

### Big players

Quais as maiores tecnologias que oferecem este tipo de solução

### Major problems

Quais as limitações e desvantagens já conhecidas

## Game engines

Falar do Unity / concorrentes, porque a escolha foi unity pequena introdução ao motor de jogo

# Theory

O que é suposto o projeto fazer quando entregue

## The problem explained to a first grade kid

Explicar a solução como de uma forma simples e desenvolver um pouco mais em partes. (texto para voz | voz para texto | chatbot | base de dados)

## Impossible to solve

Ameaças não controlaveis ao bom funcionamento do projeto. ( Ruído / idioma / etc)

# Methodology

Como vou testar o bom/mau funcionamento e que provas prentdo apresentar

## Questionnaire

Após uso da solução/projeto que questões e qual o grau de importancia das mesmas

## users

O tipo de amostra que usa o projeto (idade/sexo/nível de ingles)

## observation

# Development plan

## Preliminary study

## Implementation

## notice of results

## report

# Results

## Final solution

## Development chart

## Ease of use

## Problems

# Discussion

## Solution review

### final project vs original idea

### users feedback

## methodology

### used systems analysis

### alternative solutions

## future work

# Conclusion

# Bibliography