

Functional Requirements

3rd year Project 2012-2013

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| Project Name: |
| Development of a Card Game Management Application within a Real & Virtual Environment |

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# INTRODUCTION

This paper provides the functional specifications for the 3rd year project “Development of a Card Game Management Application within a Real & Virtual Environment”. This document describes all the functionalities of the final product elaborated for this project. This includes the main characteristics, the detailed functionalities of each component of the product, and the guidelines to run the final program. This project is held by two pairs of students working on the two main parts of the project; an electronic part which includes the RFID detection of cards and a development part which includes the game interface and architecture. The main goal of this project is to mix a real and a virtual environment within a card game context. As a matter of fact, the purpose is to enable real and *virtual players*[[1]](#footnote-1) to play the same card game together.

# Overview

The working title of our product is **Blue Weasel** so far. The final product’s name will be determined before the production process.

Four players real or virtual are required to play this game but at least one of them must be a real player. The following section describes a sequence of actions putting forward an example about how to play the game.

|  |  |  |
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|  | Steps | Description |
| 1 | **Signing in** | Four players subscribe to the game application.    -Subscribe as a real player  -Subscribe as a virtual player  D:\ESIGETEL\projet2013\reports\img\Computer.png  D:\ESIGETEL\projet2013\reports\img\1vplayer.pngD:\ESIGETEL\projet2013\reports\img\4players.png |
| 2 | **Beginning** | Real players around a game table can create a game room, and then virtual players via their tablet/computer can join to meet the required number of players for the chosen card game.  D:\ESIGETEL\projet2013\reports\img\Computer.png  D:\ESIGETEL\projet2013\reports\img\1vplayer.pngD:\ESIGETEL\projet2013\reports\img\1vplayer.png |
| 3 | **Scanning** | Every card of each player is scanned during the dealing. |
| 4 | **http://www.nfc-webshop.com/media/catalog/product/cache/3/image/b80e4747214187c15c9b11aa9dfd2c61/6/1/614_0.jpghttp://www.nfc-webshop.com/media/catalog/product/cache/3/image/b80e4747214187c15c9b11aa9dfd2c61/6/1/614_0.jpghttp://www.nfc-webshop.com/media/catalog/product/cache/3/image/b80e4747214187c15c9b11aa9dfd2c61/6/1/614_0.jpgPlaying**  Card reader | To play a card, the real player has to scan it whereas the virtual player selects the card from the game application. Then all the cards are shown on a screen located in the middle of the game table and on the virtual player’s tablet as well.      http://www.poker-en-ligne-france.eu/wp-content/uploads/2010/03/7-jeu-de-cartes-300x225.jpghttp://www.poker-en-ligne-france.eu/wp-content/uploads/2010/03/7-jeu-de-cartes-300x225.jpghttp://www.poker-en-ligne-france.eu/wp-content/uploads/2010/03/7-jeu-de-cartes-300x225.jpg |
| 5 | **Ending** | The score is automatically calculated and is displayed at the end of every round, and at the end of the game. |
| 6 | **History** | Each step of the game is saved and can be viewed later by a signed in user who took part in the game. |

# Detailed functionalities

This section provides the detailed functionalities of the following parts: Signing in, Beginning, Scanning, Playing, Ending and Data Acquisition.

## Signing in

* Every virtual player and real player who starts the Game Application, has to create a Blue Weasel account through a Web Application
  + Providing a unique nickname
  + Proving a correct email address
  + Providing a secure password
* A player can cancel his account at anytime
* A player can retrieve his password if it has been lost
* A member can recommend the game to a friend

## Beginning

* A virtual player can access the list of current games.
* He can access the list of games awaiting players.
* A real player can create a new game:
  + He can set some parameters such as the winning score
  + He can give a name to the game session

## Scanning

* The Game Application gives instructions to process correctly the dealing
* A real player can deal the cards scanning them on the card reader.
  + He must respect the number of cards and the game order, both indicated by the game Application
  + Whilst dealing the cards, he must wait for the Application alert and beep before switching from a player to another one.

## Playing

* A real player can play a card during the game process by scanning it away.
  + The player can take a look at the Game Application in order to check whether he is to play a card.
  + When a card has been scanned for the second and last time, the Game Application will consider this card as played by the current player.
  + The player can play some special cards which represent the usual spoken decisions such as “I take” and “I pass”.

## Ending

* The score of the teams is displayed as long as the game is running and is recalculated at the end of each round.

## History

* When a card is scanned, it is saved in a way that allows the game application to replay an entire game. When a user is signed in he can choose to view again the games that he played in the past.

# Ergonomics

Please see Appendix n°1: Game Table Application Ergonomics to have a better understanding of how the Game Table Application will work and the different “screens” that it will contain.

Please see Appendix n°2: Tablet App Ergonomics to have a better understanding of how the Tablet App will work and the different “screens” that it will contain.

# Case of the Belote Game

It has been decided to choose “The Belote” game for this project. This section goes through the game progress for real and virtual players. In this scenario, there will be three real players and one virtual player. The scenario with two real players and two virtual players is almost similar to this one.

## Preparation

* Once all 4 players have joined the game, the “Belote” game can begin.
* A real player can deal the cards.
* The dealer has 8 special cards.   
   - 1 card ‘I take’   
   - 1 card ‘I don’t take’   
   - 4 cards representing the four possible suits   
   - 1 card ‘belote’  
   - 1 card ‘rebelote’

## Dealing

* The dealing and playing order is set by the game application, thus the dealing player must read the instructions given on the game table screen before dealing. During the dealing, the cards of the virtual player are drop on an empty area of the table.
* He first deals 3 cards to each player, scanning them 3 at a time.   
  He then deals 2 cards to each player, scanning them 2 at a time.   
  When the dealer scans the cards of the virtual player, they are displayed on the tablet application.

## Bidding

* He then takes the card on top of the deck and scans it. This card is the trump.   
  The first player to play must say whether he wants to take it or not. If he decides to take it, the dealer scans the ‘I take’ card and the rest of the cards are dealt. If he decides not take it, the dealer scans the ‘I don’t take’ card, and the next player to play can speak, and so on and so forth…   
  When comes the turn of the virtual player, he can directly decide to take the trump or not by pressing on a button on the tablet application, the dealer just waits for the virtual player’s choice to be displayed on the game table screen.
* If none of the 4 players chooses to take the trump, a second round of bidding starts. During this round, the players can choose the trump suit. If a player decides to take the trump, he chooses the new trump suit and the dealer scans the special card representing the concerned suit. If no one takes the trump after the second round of bidding the cards are dealt again.   
  During the second round of bidding, if the virtual player wants to take the trump, he presses the trump suit button of his choice on the tablet application.

## End of dealing

* Once a player has taken the trump, the rest of the deck is dealt. The dealer gives 3 cards to each player except to the one who took the trump who receives the trump and 2 cards. The dealer scans the cards as he deals, like for the first part of dealing.
* Now the game may start.

## Playing

* When playing, all players have to follow the instructions given by the game application. When real players want to play a card, they just have to scan it and when the virtual player wants to play, he just have to select the card he wants to play by touching it on the tablet application.
* To learn more about the rules of the “Belote” game, please see Appendix n°3: Belote game rules.

## Scoring

* The score of each team is calculated as the game goes by the game application. However, it is only displayed at the end of each round and at the end of the game.

# Possible improvements

* Adaptation of Blue Weasel for other card games with possibly more than four players
* Adding vocal commands to the game application

1. We call a virtual player someone who plays the game remotely via a tablet or a personal computer. This is not to be confused with Artificial Intelligence which is not part of this project. [↑](#footnote-ref-1)