Waventure

LEFEBVRE Romain
Engineering College Leonard De Vinci
Courbevoie, France
romain.lefebvre@edu.devinci.fr

LEDRU Solal
Engineering College Leonard De Vinci
Courbevoie, France
solal.ledru@edu.devinci.fr

HIRTH Quentin
Engineering College Leonard De Vinci
Courbevoie, France
quentin.hirth@edu.devinci.fr

CARRE Arthur
Engineering College Leonard De Vinci
Courbevoie, France
arthur@carreo.fr

***Abstract*—Our project would be software that the user would launch at the start of a battle in the game Waven. The software would aim to see and understand the placement of enemies as well as their types and statistics. He must also be able to read and know the cards he has available to play. His mission will then be to play against the enemies. To play, he will have to perform two actions: move/attack (in Waven the attack is an extension of the movement) as well as cast cards (spells) to overcome enemies. In addition, he must respect the rules imposed by the game to succeed in the daily quest. If we succeed in the project, there are two very similar ways to improve it. The first is to ensure that the software can launch itself into the game and that it can navigate the menus on its own to choose which fight to carry out. The second would be that he can repeat the same mission a defined number of times to collect rewards in large quantities. It would also be interesting to teach our project to play with characters that have more complicated gameplay.**

User, Customer	Arthur, Quentin	The user download the software from a website and need an easy to use application to help him automating Waven fights and challenges.
Software Developer	Solal	The goal of the software developer is to program a software providing all the requirements planned. He's in charge of design solutions to implement the functionalities
Development manager	Romain	The development manager must guide the development team by giving the deadlines, make sure the requirements are well implemented and find solutions for development related issues. He needs to have a good vision over all the development process.

I. INTRODUCTION

A. Motivation

Almost everyone has already played a video game, there are so many genres that everyone can have fun with at least one game. However, some games might require a bigger investment from the players than others, as they ask for a more valuable resource than your money, your time. The action of repeating a certain part of the game is called "farming", and it can be quite an ordeal, depending on if that part is fun or not, but even the funnier part gets boring when repeated. This is why some games implement an automatic way of doing it, where you just spend the resources needed to complete whatever you need to complete, and it just gives the rewards automatically, but it is far from a common thing. That is why some programmers decided to take the matter into their own hands and do it themselves by coding programs that will automatically do the actions as if they were the players, but without the need for players. It was while seeing such programs in some of the games we play that we decided to try and do the same for another game we know of: Waven. The program, in both cases, does not involve machine learning as it only finds an optimal list of instructions from a game tree, but it could be added later to polish the fitness function we will be using.

As for our educational background, we were interested in how artificial intelligence can recognize an object (whether it is in a video game or not) as well as how software can take decisions with the best output depending on the situation. This project is an opportunity for us to make a first step in the field of AI and learn a lot about its key concepts.

B. Related Software

When we were looking for other related software, we found AI used on another game from the same studio called Dofus. The main difference here is that the latter does have a player-based economy, so the creation and publication of automated applications add to many resources without effort and ruin a major part of the game. In our case, Waven doesn't give you any advantage over other players regarding equipment or money, so it only allows you to focus more on the interesting

content of the game and skip the boring but time-consuming one.

II. REQUIREMENTS

A. Lauching the software

To launch our application the user must have a PC, which will serve as support to launch the game ”Waven” and our softawre. the user must have dowload python and the needed librairies.

B. Recognize the situation

Once the software launch, it should check if the computer its running on has another program named Waven running. Then, after checking if the user launched a fight, it should be able to extract all the key information using image recognition on a screenshot of the game.

C. Solve the situation

Once all the information obtained, the software must resolve the situation finding the best list of instruction to make an optimal turn.

D. Apply optimal solution

The software must be able to execute the list of instructions previously found in-game. After each action, the software must verify if the board is in the same state as planned to avoid it to be stuck trying to perform actions on empty cells for example. Foes able to move during your turn or critical hits are random so if something unexpected occurs the software must be able to find another list of instructions.