

M. de Waal	(S2564092)
Create M6	AI&Programming
DR. M. GERHOLD	2022-01-24

SYNOPSIS

In a maze the AI-player, the green block, has to get to the finish, the red block.
But, a player interferes with the AI, by changing the maze!
The player can change the maze each time after the AI has done 10 steps.
The player however, has not the full vision on the field,
The player has to look through a small window.
After the AI finishes the complex maze, VLC will start playing a cute doggo :)

The code of the maze was based on tutorial 6 of the AI&P course

USAGE AND INTERACTIONS

Start: The player looks through a small window to the field, the AI has the first turn and will do 10 quick steps.

Players turn: the player can move the window by adjusting two potentiometers, as soon as it hits the left mouse button the maze will change and the AI will take it's turn. This goes on until the AI reaches the finish.

Arduino LEDs: A red light indicates the player is not changing the maze, an orange light indicates the player is currently changing the maze, and a green light indicates the AI has reached the finish.

Finish: When the AI is finished, a cute dog video will be played using VLC.

ARCHITECTURE

In this section the most important methods in the main tab and the classes are discussed

Main (game):

game loop: iterates the actions of handling events, drawing components and updating the game.

Update game: the move of the current player is called, or when finished, the doggo will appear.

draw components: the background, maze and player window are drawn.

Maze:

Generate maze: The maze is being generated using an dept first search algorithm.

Search:

do move: the AI will do 10 steps towards the goal, using an A* search algorithm. Then returns that it is the players turn.

compute path: computes the path and creates an list with the 10 steps to be walked

Player:

do move: will be executed until the player clicks his left mouse button, gives room for adjusting the window. If the left mouse button is clicked, the function will return that it is the AI its turn.

draw: draws the layer with the window for the player

Arduino:

Handle input: deals with the serial communication from the arduino

