2018-virtual-morris-maze

You will find two versions of the virtual morris maze under /deploy/. One application is for use with Oculus VR, the other is intended to be used without VR.

Setup - Non VR

1. Make sure the joystick is plugged in
2. Start the application under deploy/build - normal/VMWM.exe
3. You will see a starting screen where you can enter the participant's information and see the controls
4. Follow the instructions on screen

Setup - VR

1. Make sure that the Oculus is plugged in and setup correctly for seated VR
2. Make sure the joystick is plugged in
3. Start the application under deploy/build - vr/VMWM.exe
4. You will see a starting screen where you can enter the participant's information and see the controls. The person in VR cannot see this screen
5. Upon starting, all information that was proviously shown on the screen (Run sucess messages etc.) will be shown in the world, visible for the VR player
6. Follow the instructions on screen

Config

Each run can be confiured with the file located in deploy/config/VMWM-Experiment-Config.csv. All variables except Run_ID are optional, but can be entered **without** quotation marks. Order of the columns is not important.

- Run_ID: The number of the run. These should be in ascending order and no numbers should be skipped
- Pos_Goal_Distance: A number between 0 and 1. The number describes the relative distance between the pond's center and the pond's margin, where 0 is in the center and 1 is at the edge.
- Pos_Goal_Degree: A number between 0 and 360. The number describes in which direction (degree) the target platform is shifted with the distance of Pos_Goal_Distance from the ponds center.
- Goal_Size: The diameter of the target platform in meters.
- Pond_size: The diameter of the pond in meters.
- Spatial_Cue_Presence: Describes if any land marks should be visible in that run. 0 or 1. This overwrites the later settings
- Time_Threshold: The maximum duration in milliseconds for finding the target platform in a trial to complete the run. The run is only finished, if the contestant finishes a trial below this time threshold. Otherwise an additional trial will start.

- Scripted_Spawn_Points: A List of Spawn points in the shape: "N,S,E,W,S,S,E,W,..." where N=North,S=South,E=East,W=West. An empty list declares that spawn points should be generated randomly during the run. In case the participant needs more trials to complete the run then there are spawn points declared in the list, the list will start from the beginning.
- Spatial_Cue_Visibility: A List which declares the spatial cue's visibility in the folowing shape: "NE=1,SE=0,SW=1,NW=1", where "NE" describes "north-east", "SW" describes "south-west" location etc.. If Spatial_Cue_Presence is 0, there will be no visual cues as it overwrites Spatial_Cue_Visibility.
- Show_Target_Platform: Describes if the target platform should be visible for the run. 1 or 0.
- Show_Fireworks: Describes if the fireworks after a trial is visible. 1 or 0.
- Movement_Speed: Modifier for Movement speed during trials. 1 equals standart movement speed.
- Wait_Time_Before_Trial: Countdown time in seconds before each trial.
- Simple_Skybox: Simpler Skybox to prevent additional visual cues from skybox. 1 or 0.
- FOV_Degree: Field of view degree of camera. Only works for non-VR. Between 60 and 100.

If a variable is not entered in the csv, a default value is assigned. Below are the default values for all variables:

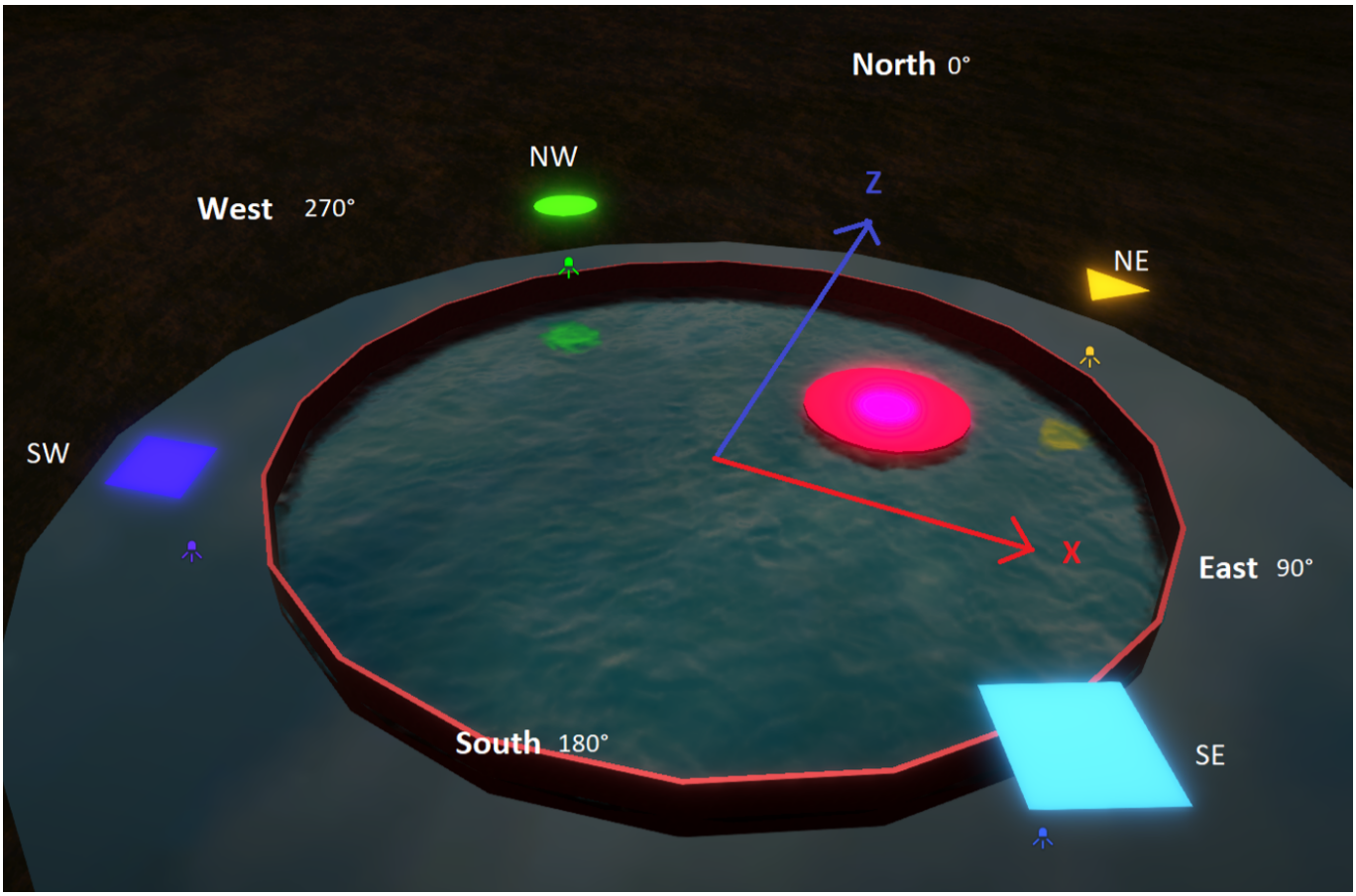
Run_ID = 0; Pos_Goal_Distance = 0.5; Pos_Goal_Degree = 180; Goal_Size = 2; Pond_size = 10; Spatial_Cue_Presence = 1; Time_Threshold = 12000; Scripted_Spawn_Points = ""; Spatial_Cue_Visibility = "NE=1,NW=1,SW=1,SE=1"; Show_Target_Platform = 0; Show_Fireworks = 0; Movement_Speed = 1; Wait_Time_Before_Trial = 5; Simple_Skybox = 1; FOV_Degree = 60

Cardinal directions

The orientation and cardinal direction used for logging and in the configuration are different than one would assume, in order to be consitent with the engine's coordinate system.

- North is in the positive z-direction
- East is in the positive x-direction
- The y direction is responsible for height, and is ommited from logging since the pond is flat

The graphic below also visualizes the cardinal directions:



Controls !!! Attention !!! The EXTREME 3D PRO Joystick's Key assignments are not consistent! The registered key numbers don't necessarily correspond to the numbers written on the joystick! The following button names/numbers correspond to the numbers written on the joystick and not to the actual key bindings.

- Movement: joystick | keyboard: WASD
- (Start) Start trial: joystick: thumb button | keyboard: Numpad 1, page up
- (Confirm) Start experiment / next run / next trial: joystick: button 3 | keyboard: Numpad 2, page down
- (Pause) Pause trial: joystick: button 4 | keyboard: Numpad 3
- (Escape) Quit application: joystick: button 6 | keyboard: Escape