



G-One Debuggers

**Moway**

# User manuals

For Virtual self-driving car using reinforcement learning

Version 1.0

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## Introduction

The project is about designing and developing a virtual self-driving car using reinforcement learning to mimic the behavior when it is running with a set of another self-driving car or human cars. This can be used to observe the impact that the self-driving car can have on damping the traffic bottlenecks caused by manned vehicles. This framework can be simulatable in a different traffic situation and different phenomena.

## Process Overview

The product can run using the executable file. First of all, decide the model name and give it into the Input box and select the Train Button if you want to train a model otherwise you want to Play the model you can select the Play button. Next, you meet the Environment creation user interface, Here you can create different traffic situation and different phenomena Using Different maps, and cars and obstacles. Then you can proceed with the simulation.

## Workflow

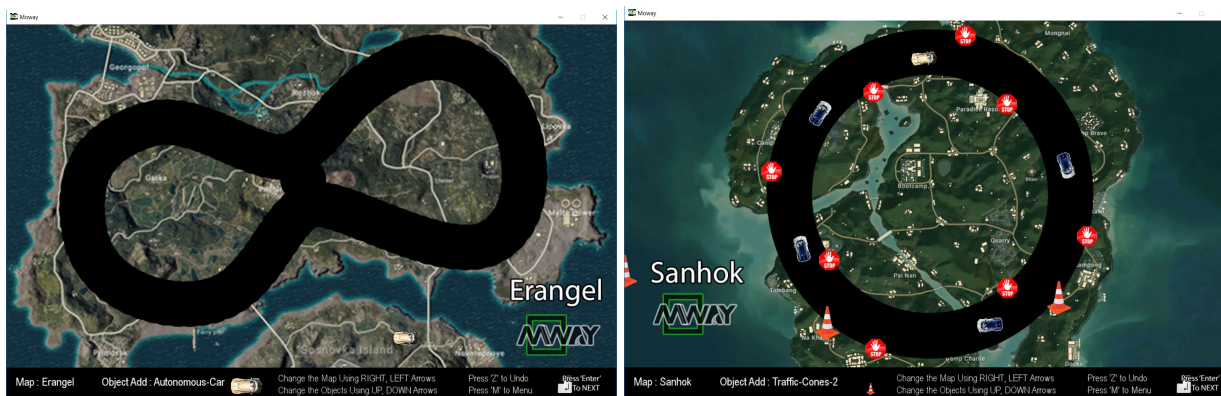
### 1. Main Menu



**Train** - Gave the new model name and Press the Train Button in The Menu. You will be taken to the Environment creational user interface

**Play** - Gave the already trained model name and Press the Play Button in The Menu. You will be taken to the Environment creational user interface

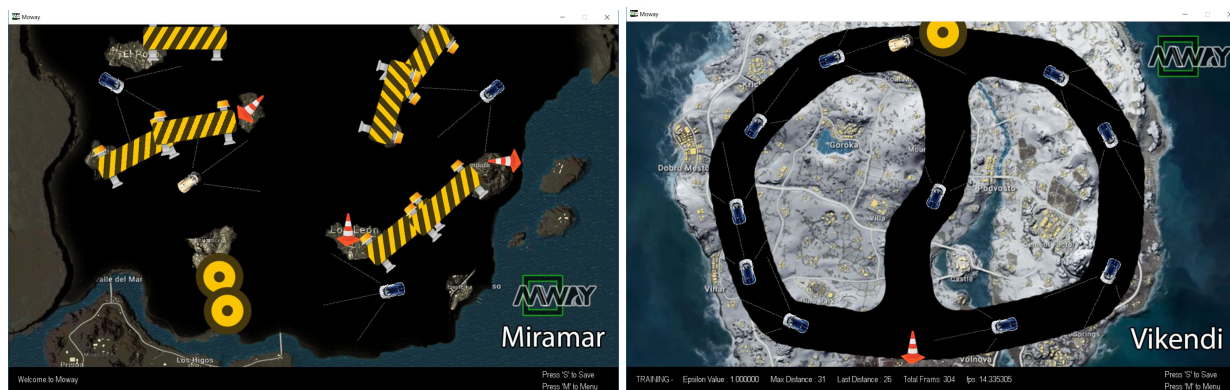
## 2. Environment Creator



First, User can Change The map using Right and Left Arrow Keys, And also user can Change the adding obstacle or manned car using Up and Down Arrow Keys. User can set the location of the obstacle by using mouse Click button and also set the angle of obstacle by releasing the mouse button.

Right, Left Arrows	Change Environment Map
Up, Down Arrows	Change Obstacles / Cars
Z	Undo the Last Action
M	Exit To Main Menu
Enter	Enter to the Simulation (Train / Play)
User can Establish the Obstacle/Car in the correct position Using Mouse click and Drag and Release the mouse click to the Facing Direction	

### 3. Simulation



When Training User can View The Epsilon Value, Max Distance, Last Distance, Total Frames, fps Details in the Below. User can save the model(Reinforcement Learning Car) by press the S key. You can exit to the Main Menu By Press M Key. There is also autosave after ever 5000 frames trained.

S	Save The Model
M	Exit to Main Menu

## Contact us

If you encounter issues not addressed by this user guide, please contact us for additional support. You can contact us via [sajeevan.16@cse.mrt.ac.lk](mailto:sajeevan.16@cse.mrt.ac.lk). The reply will be given within a business day.