

# User manual for V2I modeled environment

## Launching the application on a single computer.

### Modify setup file:

The startup settings for the application are located in different JSON files. For the use of a single computer see the file "botsInitSettings.json":

The file contains a json list of all mBots that can be connected to.

See example:

```
[
  {
    "addressBT": "000D19033AF9",
    "botName": "CARolus(0) "
  },
  {
    "addressBT": "000D190336D0",
    "botName": "CARolin(1) "
  },
  {
    "addressBT": "000D19124CC0",
    "botName": "CARlos(2) "
  }
]
```

**AdressBT:** is the bluetooth address of the bluetooth card on the mBot.

**BotName:** is a string that gives the bot a name, it could be a string of any value.

To add a mBots add a new object to the file with bluetooth address and a unique name for the mbot.

To remove a mBot simply remove the object from the file.

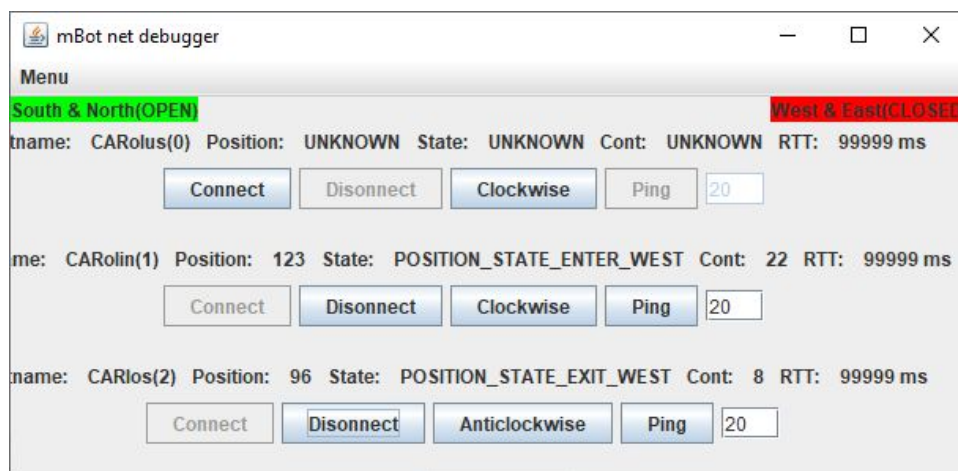
### Start the application:

1. Place the mBots at the positions marked C or AC on the track, C for clockwise and AC for anticlockwise.
2. Turn on the mBots
3. Make sure the mBots are paired with the computer
4. Run "mBotNetDebugger.jar". *(Make sure that the setting file exists in the same directory)*

5. Then using the menu bar to choose the algorithm that is to be used, shown by pressing the menu button.
6. Use the clockwise/anticlockwise button to choose what direction each mBot is traveling in. *(The direction shown on the button is the set direction)*
7. Use the button connect to connect and start each mBot. Alternativ use the menu bar option “connect to all”. *(They will start running after a connection is made)*

If the jar-files are run using command line they will print a log of the communication and data collected during the runtime. *(These will also be saved in a log file in the directory “logs” in the same folder as the jarfile)*

## GUI:



## Data information

- **Botname:** The name of the mBot
- **Position:** The number of dashed lines the mBot has passed
- **State:** The mBots position state on the track
- **Cont:** The number of continues dashed lines the mBot has passed
- **RTT:** The time it takes for a mBot to reply to a bluetooth message that it receives from the computer.

## Buttons

- **Connect:** Establish a BT connection between the mBot and the vehicle computer
- **Disconnect:** Close the BT connection between the mBot and the vehicle computer
- **Clockwise/Anticlockwise:** Toggles whether the mBot is on the C lane or the AC lane.
- **Ping:** Sends a BT-message to the mBot and calculates the time it takes for the mBot to reply.
- **Menu:** By pressing the menu button these options will be shown.
  - **Connect All :** Used to connect to all mBots.
  - **Set TrafficLight alg. :** Used to set the running algorithm to the traffic light algorithm
  - **Set Queue alg. :** Used to set the running algorithm to the Queue algorithm

## Launching the application on independent systems.

Modify setup file:

For the use of independent systems see the files “botSettings.json”, one for each separate mbot and computer.

Example:

```
{  
  "addressRSU": "10.90.131.51",  
  "addressBT": "000D19033AF9",  
  "botName": "CARolus(0)",  
  "clockwise": true,  
  "baseMotorSpeed": 20  
}
```

**addressRSU:** The IP-address of the system that is running the RSU software.

**addressBT:** is the bluetooth address of the bluetooth card on the mBot.

**botName:** is a string that gives the bot a name, it could be a string of any value.

**clockwise:** set to true if the vehicle is in the clockwise track lane and set to false if the mBot is in the anticlockwise lane.

**baseMotorSpeed:** sets the base speed variable of the motors. interval (0-100).

To add a new mBot all fields are required in the setting file.

Start the application:

1. Place the mBots at the positions marked C or AC on the track, C for clockwise and AC for anticlockwise. *(as defined in the setup file)*
2. After this turn on the mBots.
3. Make sure the mBots are paired with the computer
4. Run “VehicleComputer.jar” on separate computers one for each mBot in use. *(Make sure that the setting file exists in the same directory)*
5. Then start the RSU, with the jar file named “RSU.jar”.
6. When the mBots has connected to the RSU, they begin to drive.

If the jar-files are run using command line they will print a log of the communication and data collected during the runtime. *(These will also be saved in a log file in the directory “logs” in the same folder as the jarfile)*