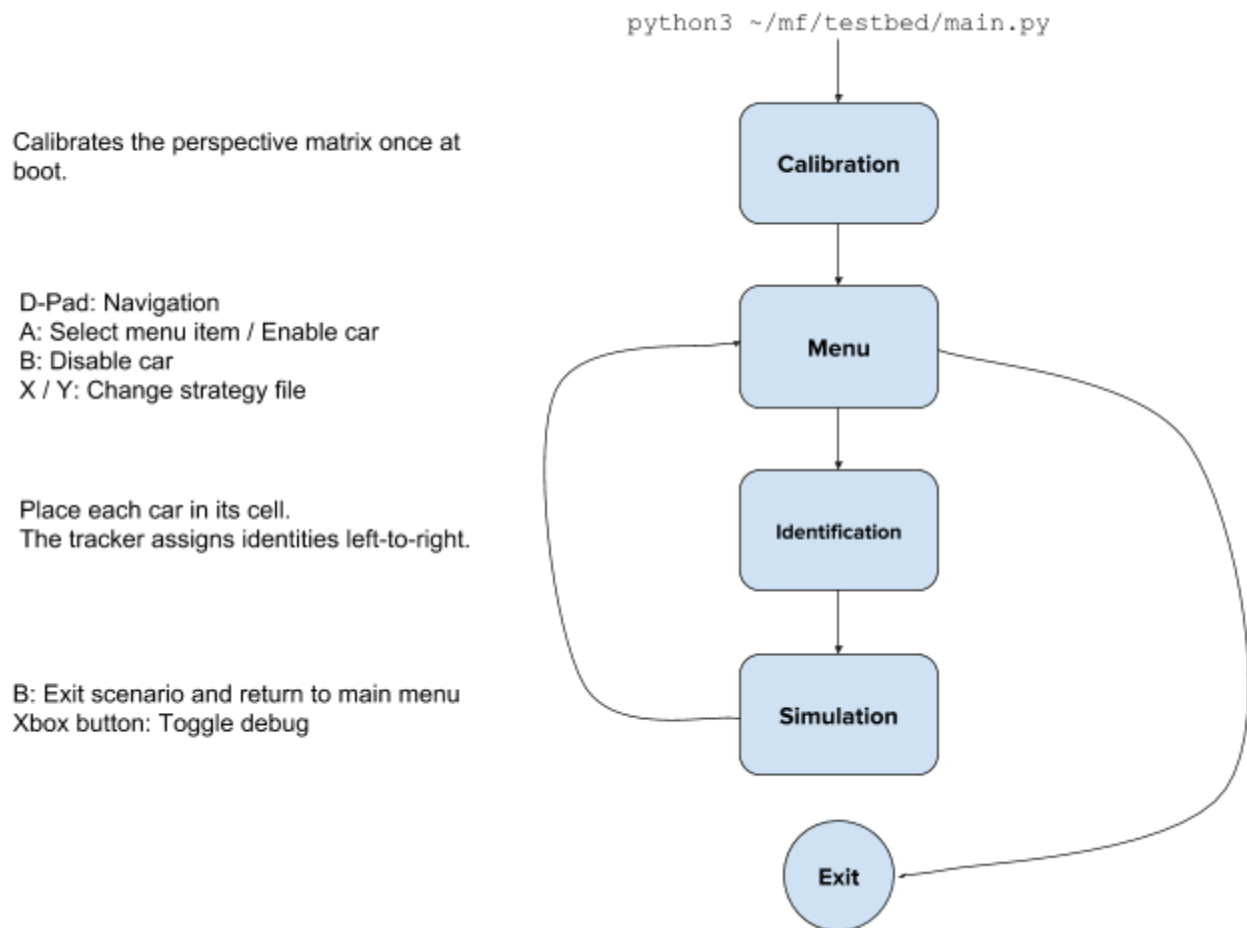


# Micro AV Testbed

## Info Sheet

### Operation

The included Xbox 360 controller must be connected during operation.



## Code

The code can be found at <https://github.com/mycoolfin/testbed>.

The software uses multiprocessing and so a heatsink is mandatory. If the Pi begins to overheat during operation you will see a small thermometer indicator in the top right corner of the display.

### Structure

```
testbed

maps ..... Contains maps.

media ..... Contains misc. images.

strategies ..... Contains strategy files.

tracker ..... Contains scripts used to track the cars.

    blob_detector.py ..... A simple blob detector attuned to the cars' shape.
    calibrator.py ..... For calibrating the camera perspective.
    camera.py ..... For reading frames from the camera.
    core.py ..... Tracker imports, classes and constants.
    mosse_tracker.py ..... The MOSSE tracker.
    orientation_finder.py ..... Methods for determining car orientation.

zenwheels ..... Contains data regarding the ZenWheels Micro Cars.

    cars.csv ..... Information about the fleet.
    comms.py ..... For sending commands to the cars via Bluetooth.
    protocol.py ..... The communication protocol specification.

agent.py ..... The Agent class.
constants.py ..... General constants and paths.
display.py ..... Handles input, the menu and displaying scenarios.
main.py ..... The entry point.
vehicle.py ..... The Vehicle class.
vision.py ..... The Vision class.
world.py ..... The World class.
```

### Adding maps

For each new map, add a folder in the 'maps' directory called 'map\_<name>'. In this folder, add the map image as a PNG file, called 'map\_<name>.png', and a TXT file containing the map's waypoints called 'map\_<name>.txt'.

### Adding strategies

Create a python script and place it in the 'strategies' directory. The script MUST contain the function `def make_decision(self):`, as this will be imported from the script by the associated agent.

### Adding new Micro Cars

Make a new entry in cars.csv including the car's Bluetooth SSID, MAC Address, and colour. The colour is only used by the menu and so this field is optional.