**Prerequisite**

* Linux based PC (Ubuntu 16.04 is tested)

**How to Install**

1. Download and install the vehicle dynamics simulator, TORCS, which is torcs.tar.gz file (<http://gofile.me/26V6U/umpm68Sn9>).
   1. Install following packages: freeglut3-dev, libplib-dev, libopenal-dev, libalut-dev, libxi-dev, libxmu-dev, libxrender-dev, libxrandr-dev, zlib1g-dev, libpng-dev (use ‘sudo apt-get install [package\_name]’ command).
   2. Extract ‘torcs.tar.gz’ file at your home directory.
   3. Go into ‘torcs’ directory.
   4. Type ‘./configure’.
   5. Type ‘make’.
   6. Type ‘sudo make install’.
   7. Type ‘sudo make datainstall’.
   8. After installation, you can run TORCS by typing ‘torcs’.
2. Download and install CPSim system configurator which is configurator.tar.gz file (<http://gofile.me/26V6U/umpm68Sn9>).
   1. Install the following package: openjdk-8-jdk.
   2. Extract ‘configurator.tar.gz’ file at your home directory.
   3. You can run CPSim system configurator by typing ‘./eclipse’ at ‘eclipse’ directory.
3. Copy CPSim simulation engine.
   1. ‘Simulator’ directory should be located at your home directory.

**How to Start**

1. Run CPSim system configurator

* When you run CPSim system configurator, set workspace as ‘workspace’.

1. Create a new project

* At ‘Design’ menu, select ‘New Project’.
* Type the project name.
* Now, you can see the canvas.

1. Configure a whole system

* In the canvas, you can add objects such as ‘CAN’, ‘CAR’ from the right panel by drag and drop.
* After adding objects, you can connect them.
* Also, you can add program codes for each SWC by clicking doubly each SWC icon on the canvas.
* On each object, by clicking it and selecting ‘Property Settings’, you can set properties of each object. For example, for each SWC, you can set offset, period, WCET, and so on.
* To describe the data dependency between SWCs, use ‘Send to’ property with SWC id.
* Refer to ‘test’ project for details.

1. Run Simulator

* At ‘Simulation’ menu, click ‘Run Simulation’ to start the simulation. Then, TORCS would be started with CPSim simulation engine. After select a proper course and start the race, you can see the vehicle’s behavior. Also, you can see schedule diagram and some variables with graphs.
* To stop the simulation, at ‘Simulation’ menu, click ‘Stop Simulation’.