

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>).
 - A. 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).
 - B. Extract 'torcs.tar.gz' file at your home directory.
 - C. Go into 'torcs' directory.
 - D. Type './configure'.
 - E. Type 'make'.
 - F. Type 'sudo make install'.
 - G. Type 'sudo make datainstall'.
 - H. 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>).
 - A. Install the following packages: openjdk-8-jdk, libxml2-dev, libxslt1-dev
 - B. Extract 'configurator.tar.gz' file at your home directory.
 - C. You can run CPSim system configurator by typing './eclipse' at 'eclipse' directory.
3. Copy CPSim simulation engine.
 - A. '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'.
2. Create a new project
 - At 'Design' menu, select 'New Project'.
 - Type the project name.
 - Now, you can see the canvas.
3. 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.

4. 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'.