Presentation of most common DIY motion simulators

Most recreated “Do It Yourself” styles and their names:

- Sporty racing seat “SimforceGT” (using the popular SCN5 actuators)
- Platform mounted simulators (with cab or without cab)
- Common flight simulator “Thanos Joyrider”
- Back out of the year 1995: “Rock’n'Ride” sold on eBay
## Newcomers decision support

<table>
<thead>
<tr>
<th>Type of simulator</th>
<th>Community popularity (out of 100 builders)</th>
<th>Price range taken from existing projects without PC hardware</th>
<th>Quality rating</th>
<th>Known building manuals (List in next sheet)</th>
<th>Used electronic interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>SimforceGT SCN5 racing seat</td>
<td>30 / 100</td>
<td>1500 – 2500 €</td>
<td>9 / 10 points</td>
<td>4</td>
<td>RS485-USB converter</td>
</tr>
<tr>
<td>SimforceGT with wiper motors</td>
<td>40 / 100</td>
<td>500 – 700 €</td>
<td>6 / 10 points</td>
<td>2</td>
<td>thanos AMC board and DIY H-Bridge 1.2b</td>
</tr>
<tr>
<td>Thanos Joyrider with wiper motors</td>
<td>20 / 100</td>
<td>500 – 700 €</td>
<td>7 / 10 points</td>
<td>4</td>
<td>thanos AMC board and DIY H-Bridge 1.2b</td>
</tr>
<tr>
<td>Rock’n’Ride with pneumatic</td>
<td>7 / 100</td>
<td>300 – 500 €</td>
<td>3 / 10 points</td>
<td>2</td>
<td>R’n’R 1.3 (X-Sim) DIY USB Interface</td>
</tr>
<tr>
<td>Some other simulators</td>
<td>3 / 100</td>
<td>500 and up €</td>
<td>-</td>
<td>2</td>
<td>- velleman k8055 - thanos AMC - LPT relaycards</td>
</tr>
</tbody>
</table>

The shown values are taken without the price of the monitor or PC game computer. It will differ from your country and import tax or the local material dealers. There is no warranty about this values, they are taken from the existing projects at their building time.
Optical rebuild of popular “Frex” system

1st place of most wanted DIY simulators

Designed for sensitive drivers (road vibrations/curbs)

2DOF and 3DOF possible

Easy to build frame, common materials

Silent and usable in a living room with neighbors (foldable)

Many “Starter kit's” from commercial shops

Often used in the professional racing sport

Very high accurate SCN5 actuators with great speed

Huge load of additionally instruments and addon's

Low problems with beamer / big monitors and depletion of damage of shock sensitive hardware
Thanos Joyrider

- Optically based on joyrider / dream flyer
- Designed for flight simulation
- Can move a person with display
- Slower movement but good accuracy
- Easy to build with common materials
- DIY electronic and common wiper motors
- Possible to add industrial actuators SCN6
Vintage: Rock'n'Ride chair

- Sold sometimes over eBay (~150€)
- 7 positions per axis (standard interface)
- Cheap entry material from eBay (Festo pneumatic)
- Standard interface compatible to X-Sim
- Bad accuracy, good for arcade racing/combat flight
- Can be easily improved with industrial pneumatic equipment from e.g. Festo for more precision and interfaces with analogue control can be added (see picture on first page)
Cab based simulators

- Big electro motors or hydraulic system
- Slow movement and high acceleration time
- Flight simulation as target application
- Cap to eliminate room environment
- 2DOF up to high end 6DOF steward platform
- Cockpit gauges controlled from game
- Expensive and room mobbing
Most recreated control interfaces

- RS485 to USB Converter for SCN5 / SCN6 actuators
  - Sold over eBay Hong Kong shipment or other shops

- Thanos DIY AMC Atmel CPU Board and H-Bridge for wiper motors used in all types of simulators

- DIY USB Interface 1.3 for pneumatic systems (not only Rock'n'Ride) and Velleman K8055d
DIY manual resources

- SimforceGT
  - Projekt 2DOF Motion Simulator von Chris
  - SCN5 Hardware thread and software thread
  - Racing Simulator by Mr.Burns
  - Simple wooden racing seat by SirNoName

- Thanos Joyrider
  - Step by Step... approaching to Thanos work
  - DIY Joyrider build manual by thanos
  - Start of a Joyrider Based Simulator
  - Watkykjy and Robert's 2DOF wiper motor simulators

- Rock'n'Ride
  - Interface settings
  - DIY R'n'R 1.3 USB interface (all files delivered in the x-sim folders)

- Platform based Simulators
  - 2dof-wiper-motor-car-simulator-by-DERIY-(SATO)
  - 2DOF Simulator mit Hydraulik vom Keller-Team
And now have fun ...

- Thanks goes to the manual providers and community members which offers their work, their descriptions and the big bunch of pictures in the forum.
- If there are questions ask the members of the forum directly in the threads.
- Support the community with your own project presentation in the forum.