### Hashtags: #spacetech, #pilotasatellite

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### Tags: Data Visualization, Model

What would it look like if you could pilot an orbiting satellite? Create a visualization tool so people have a view from a satellite as it moves in orbit or transfers orbits. You could see what an astronaut would see if she could hitch a ride on a satellite. The tool could show things like moon-hopping in the Jupiter system, landing on Mars, or landing on Rosetta as it orbits the Comet 67P/Churyumov-Gerasimenko. You could even 'pilot' the probe to the comet surface. This tool could also be designed to generate a three dimensional view from the International Space Station Cupola with the Earth moving underneath.

**Background**

We know the location of satellites, planets, and other bodies in our solar system. You can use data about these orbits to create images that you would see if you were at the location of the satellite. The images could show a 360 degree view from the satellites.

Up-to-date satellite tracking data is available for you to compute the current location of solar system objects and generate perspective images from the viewpoint of a particular satellite.

**Solution Ideas**

Here are some ways to frame this solution:

Show the trajectory of satellites in real time;

Show 3D views of planets (Earth, Mars) from the point of view of several satellites;

Show 3D view of asteroids (when images are available); and/or

Allow the user to adjust orbit or trajectory around bodies.

**Sample Resources**

* Rosetta page: <http://www.esa.int/Our_Activities/Space_Science/Rosetta>
* Interactive Satellite Viewer: <http://science.nasa.gov/iSat/?group=SMD>   
   AQUA satellite trajectory details: <http://nssdc.gsfc.nasa.gov/nmc/spacecraftOrbit.do?id=2002-022A>
* Orbital elements: <http://spaceflight.nasa.gov/realdata/elements/>
* NASA Horizon*on-line* solar system data: <http://ssd.jpl.nasa.gov/?horizons>
* ISS orbital parameters: <http://spaceflight.nasa.gov/realdata/tracking/>
* NASA Eyes on the Solar System: <http://eyes.nasa.gov>
* International Space Station Cupola Observational Module: <http://www.nasa.gov/mission_pages/station/structure/elements/cupola.html>