

Project Satellites

Our satellite system is designed to visualize all the satellites all over the world in order to show a glimpse of the past and current status of the aerospace industry. Our data is from UCS Satellites

Database(<https://www.ucsusa.org/nuclear-weapons/space-weapons/satellite-database#.W5Jcdi2B002>), which contains 1886 items with 22 attributes.

Our project shows all satellites launched between 1974 and 2018. They are divided into four categories on the horizontal direction, indicating the owner of the satellites, USA, China, Russia and Others. On the vertical direction, the satellites are positioned based on their altitude. From top to bottom, it is divided into 3 classes of orbits. Low Earth Orbit (LEO), Medium Earth Orbit (MEO) and High Earth Orbit (HEO), which are distinguished by colors in our visualization. Each satellite is represented by a circle and color-coded by its different usage, Civil, Commercial, Government, Military and Multiple. The radius of the circle represents the mass of the satellite.

We implement 5 interaction techniques. The first one is a time filter, we can set 2 thresholds to select a time period. All the satellites which are in aerospace during that time period will be displayed in our visualization, and others will be dimmed. The second one is a usage filter that can show the satellites with specific purposes by checking the usage box. The satellites with unwanted usage will be dimmed. The third one comes with change manipulation. By clicking the Orbit button, all satellites will move from their perigee to apogee then come back to show the polarizing change when they are orbiting earth. The fourth technique is used to extend the visualization of specific owner category to make the data even more readable. The last technique is hovering over. When the cursor is hovering over a satellite, the corresponding circle will enlarge, in the meantime, a pop-up window will appear and display more detailed information including Name, Purpose, Country and Launch Date.

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