Visualazation Tool for Hayabusa and Itokawa, HARMONICS

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Hayabusa shows three-dimensional maneuver arround the asteroid. The Hayabusa follows atittudal restrictions with solar condition and pointing to the astetoid.

HARMONICS (HAyabusa Remote MONItoring and Controlling System) has been developed for displaying spacecraft's attitude and positional relationship between the asteroid and the spacecraft.

HARMONICS is established Gtk with SPICE toolkit (which is distributed by JPL) as graphical user interface, and specializes for Hayabusa and Itokawa.The shape of asteroid, the probe, the sun, and the earth of positional relationship is easily solved by SPICE toolkit, but their results are displayed with CUI.

HARMONICS runs on the following platforms; MacOSX, Solaris&LINUX, and Windows.

HARMONICS has three core functions.
1) Simulation of spacecraft behavior with restrictions of its attitude, in order to obtain imaging chance.
2) Visualization of geometries among Hayabusa, Itokawa, directions to the Earth and the Sun, and a camera-field of view.
3) Comparison with an appearance of shape model and a coresponding real image
in order to verify the model.

Achievement and future works of HARMONICS are presented with this poster.
HARMONICS will be refined for the next mission, SELENE.