Welcome to International NodeBots day 2015!

Your challenge is to build a NodeRover to explore the asteroid Astraea 5.

Here are some ideas for programming your bot:

- Display the temperature on the digit display
- Display the light reading on the digit display
- Use buttons to toggle what is displayed
- Beep when an obstacle is detected using the ultrasonic sensor
- Program your bot to drive around an area autonomously, using the ultrasonic sensor to avoid obstacles

Astraea (5)

5 Astraea is a large asteroid from the asteroid belt. Its surface is highly reflective (bright) and its composition is probably a mixture of nickel–iron with silicates of magnesium and iron. It is an S-type object in the Tholen classification system.

Astraea is physically unremarkable but notable mainly because for 38 years (after the discovery of Vesta in 1807) it had been thought that there were only four asteroids. After the discovery of Astraea, thousands of other asteroids would follow. Indeed, the discovery of Astraea proved to be the starting point for the eventual demotion of the four original asteroids (which were regarded as planets at the time) to their current status, as it became apparent that these four were only the largest of a whole new type of celestial body.

Physical characteristics	
Dimensions	167×123×82 km[2][3] 119 km (mean)
Surface area	48 300 km²[4]
Volume	882 000 km³[4]
Mass	2.9×10¹⁸ kg[5][6] (assumed)[7]
Mean density	~3.3 g/cm³
Surface gravity	~0.023 m/s²
Escape velocity	~0.062 km/s
Rotation period	0.700 03 d (16.801 h)[3]
Equatorial rotation velocity	6.44 m/s[4]
Albedo	0.227 (geometric)[2]
Temperature	~167 K max: 263 K (-10 °C)
Spectral type	S-type asteroid
Apparent magnitude	8.74 to 12.89
Absolute magnitude (H)	6.85
Angular diameter	0.15" to 0.041"