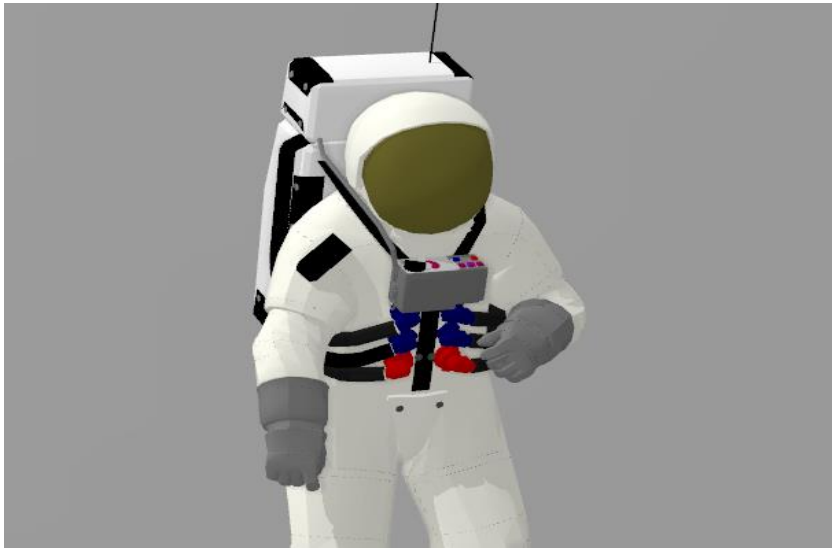
Facens



Name: Astronaut
4 Letter Key: Mans
Team: FACENS
3 Letter Key: FES
Date: 02/21/2019

Description: It's the habitants of the Mars Habitat.

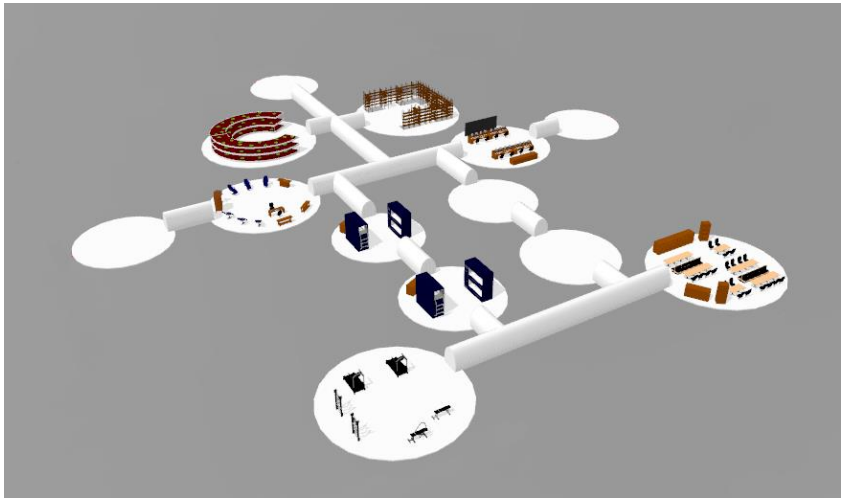
Behavior: Moves over the ground, can go inside the Mars Habitat and Oxygen Factory, and also can walk outside thanks to the spacesuit.

Data Elements: body temperature, hydration, hunger, position, orientation, mass.

Interactions: Mars Soil, Mars Habitat, Oxygen Factory

Tools: 3DS Max, SketchUp, Java

Facens



Name: Mars Habitat
4 Letter Key: HOME
Team: Facens
3 Letter Key: FES
Date: 02/21/2019

Description: The Mars Habitat is a permanent house for human colonization on Mars. Has a greenhouse, a refectory, some single dorms, collective dorms, gym, leisure space, storeroom, laboratories, ambulatory, machinery room, command room and access to outer environment.

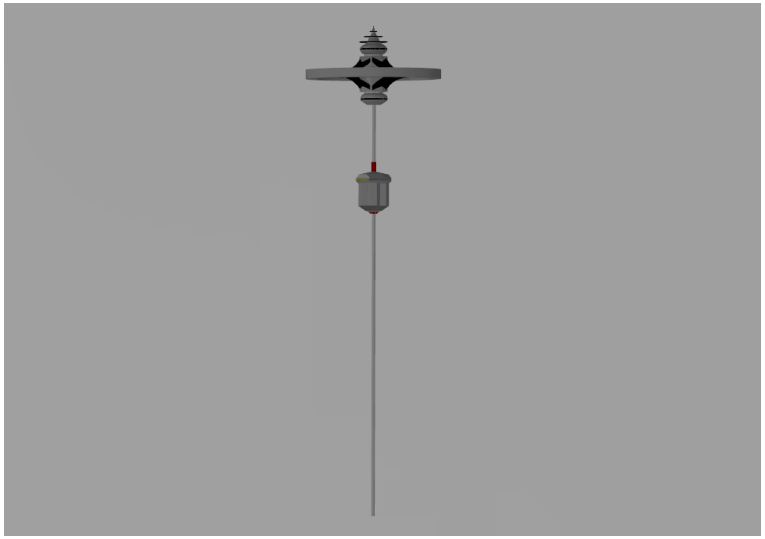
Behavior: It will provide a safe place to the astronauts on Mars soil. Also will be able to produce all the food consumed at the habitat.

Data Elements: Position, Orientation, Production of Food, Oxygen Consumption, Energy Level, Water Consumption, Vitals Signals, CO2 Levels.

Interactions: Oxygen Factory, Astronaut, Power Supply

Tools: 3DS Max, Java, SketchUp

Facens



Name: Space Elevator
4 Letter Key: SpEl
Team: Facens
3 Letter Key: FES
Date: 04/27/2019

Data Elements: Position, Orientation, Battery level,, Energy Level.

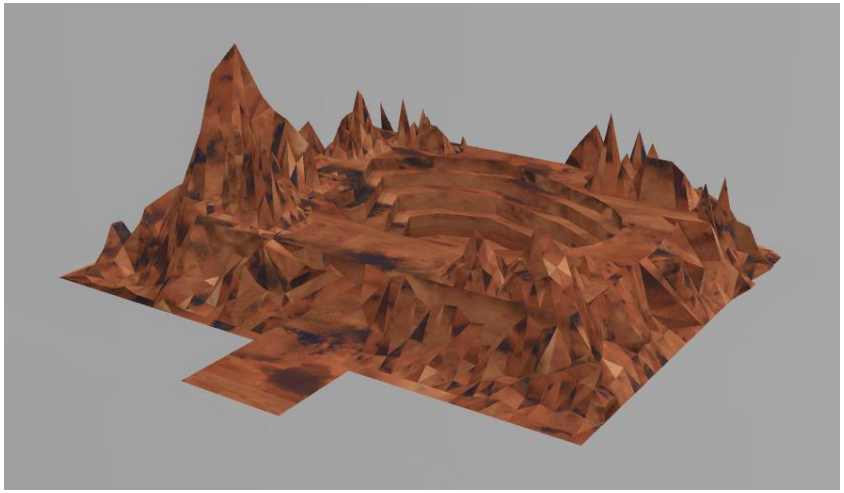
Description: The Space Elevator is designed to transport loads from the surface of Mars to space in order to replace rocket propulsion by the use of a fixed transport route to place cargo into orbit or even to launch it into space.

Behavior: The mobile part of the Space Elevator, the elevator, will go up and down carrying the loads from the surface of Mars to orbit without the need of rocket motors.

Interactions: Mars Habitat, Oxygen Factory, Astronaut.

Tools: 3DS Max, Java, SketchUp

Facens



Name: Excavation Mine
4 Letter Key: Mine
Team: Facens
3 Letter Key: FES
Date: 02/14/2018

Description: The mine is a static and large open hole intended to excavation in wich the Mars Miner will explore and excavate looking for hydrated ores (hygroscopes)

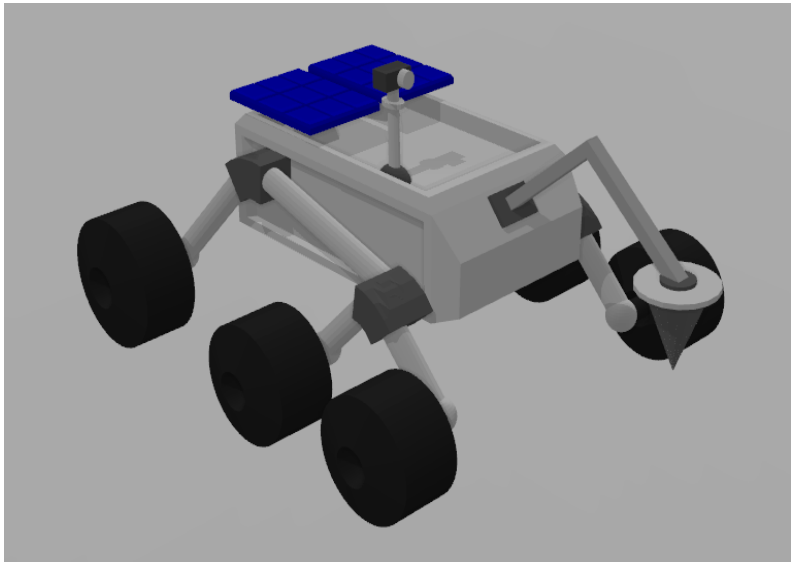
Behavior: In the mine the Mars miner freely moves exploring, excavating with its drill and grabbing wit its mechanical claw looking for hydrated ores such as Calcium perchlorate for the use of the water absorbed on them for the production of oxygen in the factory and the possible use of this ores in the production of fuel.

Data Elements: Position, Orientation, depht, diameter.

Interactions: Oxygen Factory, Astronaut, Power Supply, Jezero Crater, Mars Miner

Tools: 3DS Max, Java, SketchUp

Facens



Name: Mars Miner
4 Letter Key: MAMI
Team: FACENS
3 Letter Key: FES
Date: 02/14/2019

Description: The MAMI is a average size vehicle which has 6 wheels. It also has a drill to excavate rocks, and a mechanical claw for the purpose of grabbing ores and collect them.

Behavior: It moves from the mine to the storage and go back again, delivering the ores. The vehicle excavates the rocks and gathers the ores. With the purpose of exploring the mine, gathering resources to deliver to the storage.

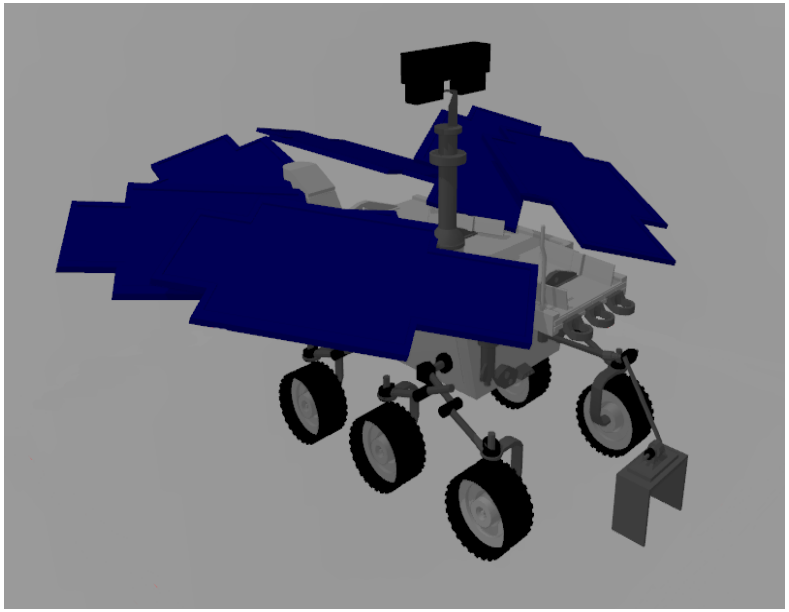
Data Elements: Position, battery level, mass, payload mass.

Interactions: Jezero Crater, Excavation mine, ores, Oxygen Factory.

Tools: 3DS Max, Java, SketchUp

Facens

Name: Water Finder
4 Letter Key: WAFI
Team: FACENS
3 Letter Key: FES
Date: 02/14/2019



Description: The WAFI is an average size vehicle which has 6 wheels. It has a Ground Penetrating Radar(GPR) for mapping Mars's subsoil to locate water and ice, a Long Range Drill (LRD),to excavate the soil and take a sample of the water or ice found. The vehicle will be powered by a battery with solar panels, and the samples collected will be stored in the Sample Tube Storage (STS) with a capacity of 30 tubes.

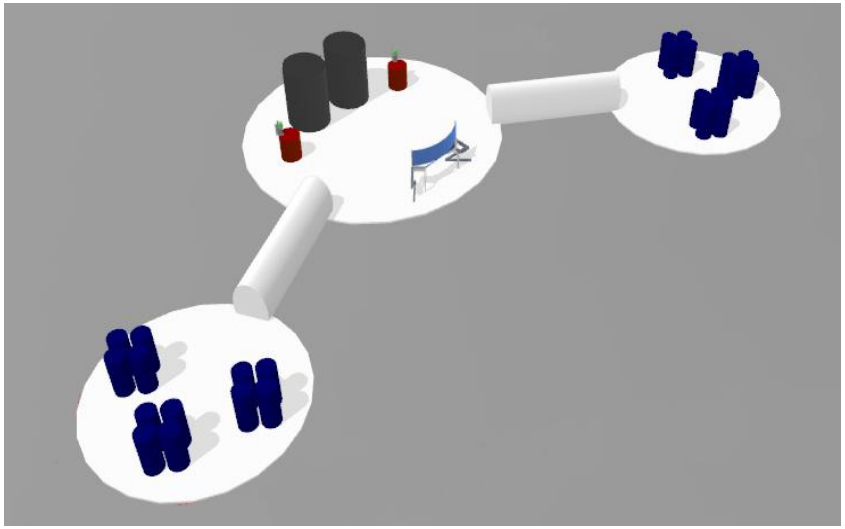
Behavior: The GPR will analyze the soil as the rover moves. If the data shows signs of ice or water on the spot, the rover stops and take a sample, using the LRD, and store it in the STS.

Data Elements: Position, Battery Level, Mass, TubeNumber, Data of GPR.

Interactions: Jezero Crater, Soil, Tubes, Oxygen Factory.

Tools: 3DS Max, Java.

Facens



Name: Oxygen Factory
4 Letter Key: O_2FAC
Team: Facens
3 Letter Key: FES
Date: 02/14/2019

Description: The O_2FAC is a factory for the production of oxygen. This factory produces oxygen using the extracted water of the hygroscopic mineral named calcium perchlorate or using the frozen

Behavior: The factory will work using energy. It will extract the water present in calcium perchlorate, or use the frozen water found in the soil to produce oxygen, wich will be store.

Data Elements: Position, Orientation, Production, storage, mass, energy.

Interactions: Oxygen Factory, Jezero Crater, excavation mine, power supply.

Tools: 3DS Max, Java, SketchUp