



# BU EARTH

Bradley University - NASA SUITS

The background is a dark space-themed gradient transitioning from purple on the left to teal on the right. It is filled with numerous white stars of varying sizes and shapes, some appearing as simple dots and others as four-pointed sparkles. Several celestial bodies are depicted: a ringed planet (like Saturn) in the upper left, a cratered moon-like sphere in the middle left, and a striped planet (like Jupiter) in the lower right. Large, soft, wavy nebulae in shades of purple and teal are scattered across the scene.

# OVERVIEW

- ★ Unity Engine
- ★ Steps and information are stored in a MongoDB
- ★ Voice commands
- ★ Philosophy in Design and Development
  - ★ Human intuition
  - ★ Ease of interpretation

DESIGN



# UNIVERSAL FEATURES

- ★ Mission progress indicator
- ★ Show vitals information
- ★ Custom pinning of vitals information
- ★ User Quote - "Very clean interface colors are good and easy to use"

The image shows a 2x2 grid of dashboard widgets. Each widget has a title, an icon, and a data value. The Oxygen widget shows a pressure gauge icon, 'Pressure Level 7.3 kPa', and 'Time Remaining 01:52:17'. The Temperature widget shows a thermometer icon, 'Internal 300.0 K', and 'External 2.7 K'. The Battery widget shows a battery icon with '11.06 v' and 'Time Remaining 300.0 K'. The H2O widget shows a water drop icon with a gauge, 'Liquid Pressure 14.03 psi', and 'Gas Pressure 14.03 psi'. A small planet icon is in the top left corner of the grid.

A single Oxygen widget is shown with a pin icon in the top left corner. It displays a pressure gauge icon, 'Pressure Level 7.3 kPa', and 'Time Remaining 01:52:17'.

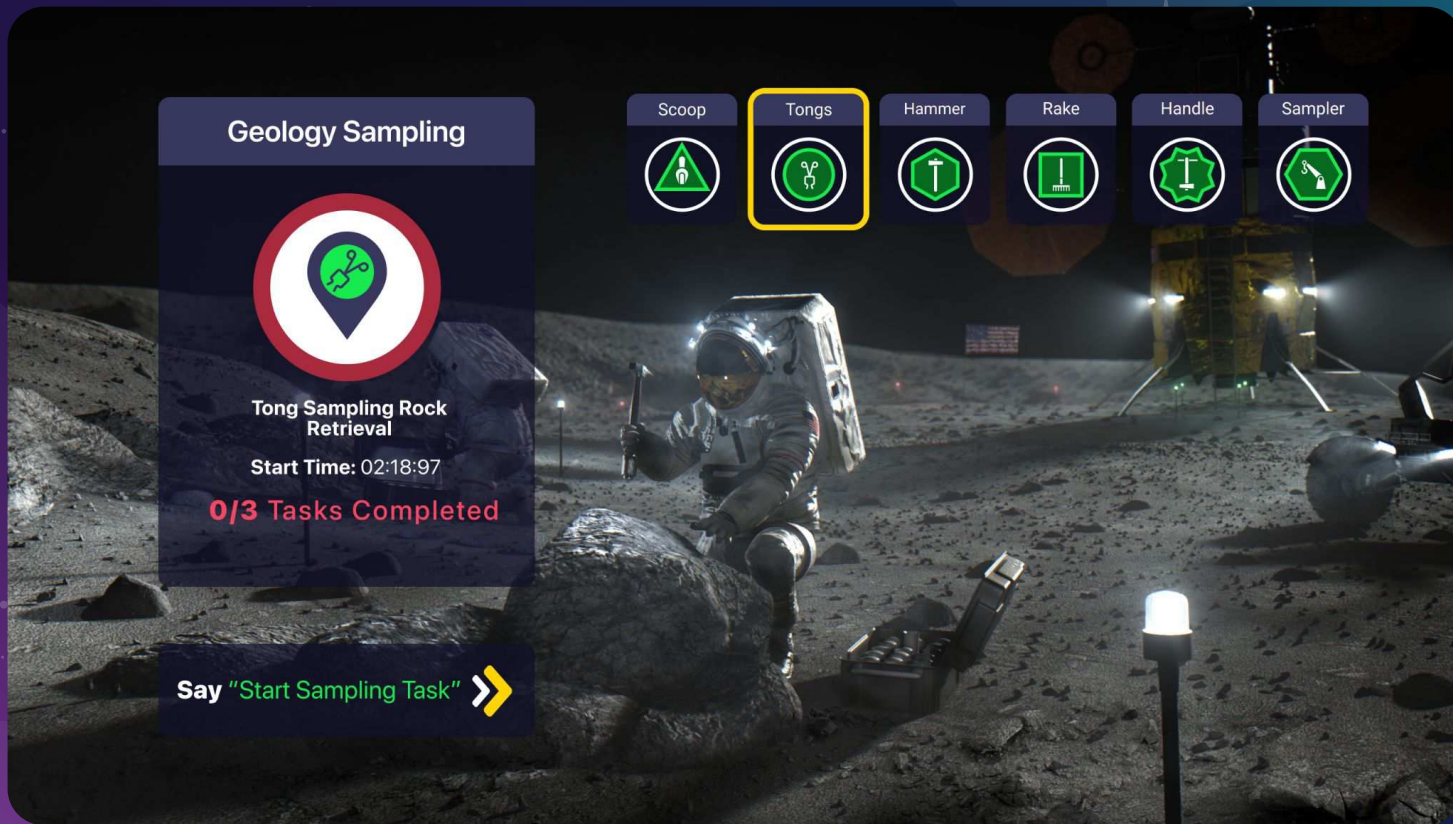


Mission Progress

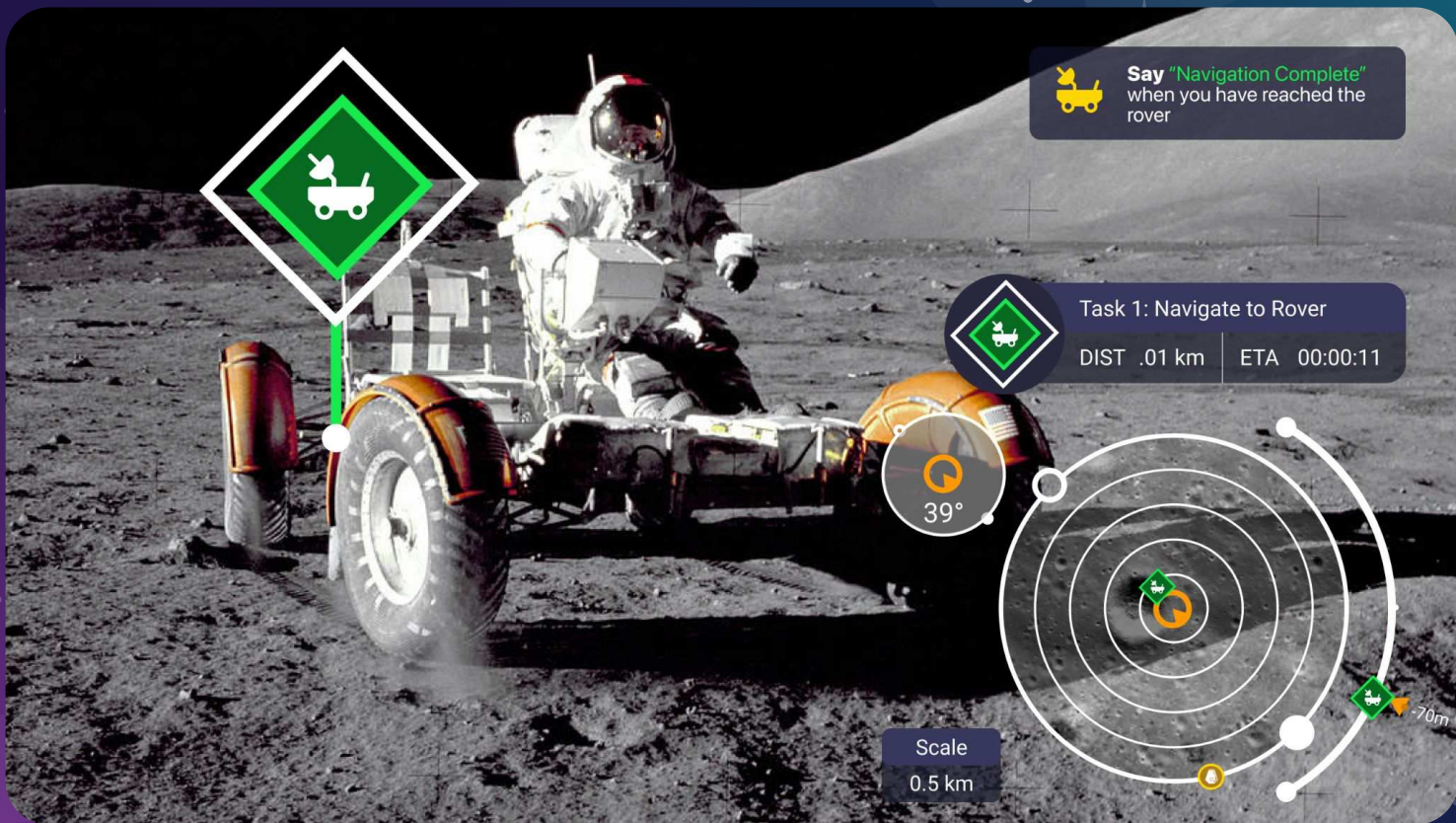
2/4 Tasks Completed



# GEO SAMPLING



# NAVIGATION



# DEVELOPMENT



# DEVELOPMENT

- ★ Procedures

- ★ Read information about procedure from MongoDB
- ★ Spawn appropriate objects
- ★ Commands advance each object in a unique way

- ★ Navigation

- ★ Use marker objects in world space to guide user to points
- ★ Minimap displays nearby points along with bearing, distance, and ETA to current objective

# DEVELOPMENT DISPLAYED

Mission Select

- 1.1 Task 1.1: Prepare ULA  
Say ULA Procedure 1
- 1.2 Task 1.2: Fill & Dump ULA  
Say ULA Procedure 2
- 1.3 Task 1.3: Final Pressurization  
Say ULA Procedure 3
- 1.4 Task 1.4: Donning Preparation  
Say ULA Procedure 4
- 2 Task 2: Geology Sampling  
Say Geology Procedure 1
- 3 Task 3: Reconnaissance Rover  
Say Rover Procedure 1

Meeting controls: BB, DW, BH, AI, B, BW

Sample Stow

Task 3: Navigate to Lander  
DIST 1.4 km ETA 00:06:38

25°

Meeting controls: BB, DW, BH, AI, B, BW

Mission Select

Oxygen: 100.0%  
Temperature: 20.0°C  
Battery: 100.0%  
H2O: 100.0%  
Pressure: 14.02 psi

1.1 Task 1.1: Prepare ULA  
Say ULA Procedure 1

1.2 Task 1.2: Fill & Dump ULA  
Say ULA Procedure 2

1.3 Task 1.3: Final Pressurization  
Say ULA Procedure 3

1.4 Task 1.4: Donning Preparation  
Say ULA Procedure 4

2 Task 2: Geology Sampling  
Say Geology Procedure 1

3 Task 3: Reconnaissance Rover  
Say Rover Procedure 1

Say Hide Vitals

Meeting controls: BB, DW, BH, AI, B, BW

Say when you have reached the rover

Task 1: Navigate to Rover  
DIST 0.10 km ETA 00:00:07

106%

Meeting controls: BB, DW, BH, AI, B, BW, TC, SC, ZB, GC, DG

People: Heather Ford Bradley Univer..., Abigail Ivins, Ben Sachman (SU 84716), Brent Ivins (Guest), Genesis, Gabriel A. USC-A1112), Douglas Gorman (Guest), Hanga, Brandon (UC-AD41), Joey Manalo (Guest), Sarah Ivers (Guest), Sreng, Liam P. (JSC-EV1), Tr Carson (Guest), Walsh, Dawn (JSC-CX11), Zach Bachmann (Bradley Uni...)

# USER FEEDBACK



# USER FEEDBACK

## Pros

- ★ Purposeful use of color
- ★ Adaptive and well designed UI
- ★ Unobtrusive warning systems

## Cons

- ★ The lighting is difficult you may not see the crater in front of you
  - ★ Directional arrows on the ground
  - ★ Obstacle avoidance would be key
- ★ Caution with regard to required frequency of voice commands

# QUOTES

"I like you have a **guide** to say what the voice control is so **people don't have to memorize phrases.**"

"Very clean interface colors are **good and easy to use.**"

"A lot of **really good development and user interface.**"

"I like the **pinning** different items."



THANK YOU NASA!

Bradley University - NASA SUITS

 @SuitsBUEarth

