NASA SUITS

Spacesuit User Interface Technologies for Students

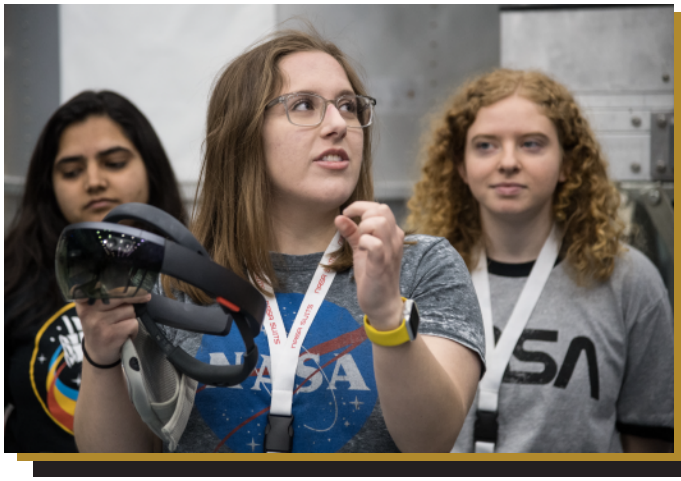
DESIGNING THE NEXT GENERATION OF SPACESUITS

THE SUITS MISSION

As NASA gears up for the Artemis Mission, sending the first woman and next man to the Moon by 2024, the agency invites college students to contribute by participating in NASA's Artemis Student Challenges. NASA Spacesuit User Interface Technologies for Students (SUITS) is a software design challenge that tasks undergraduate and graduate students in designing spacesuit information displays within augmented reality environments. Join the mission and help innovate the future of spacesuit design!

AN ASTRONAUT'S PERSPECTIVE

With increased lunar surface demands, astronauts will require greater human-autonomy enabling technologies in order to conduct extravehicular activies (EVAs) more effectively. Integrated into the spacesuit design, user interfaces developed using augmented reality devices can also provide EVA System State information in non-obstructive ways and facilitate reliable communication mechanisms between crew members and Mission Control.



REAPING THE EDUCATIONAL BENEFITS

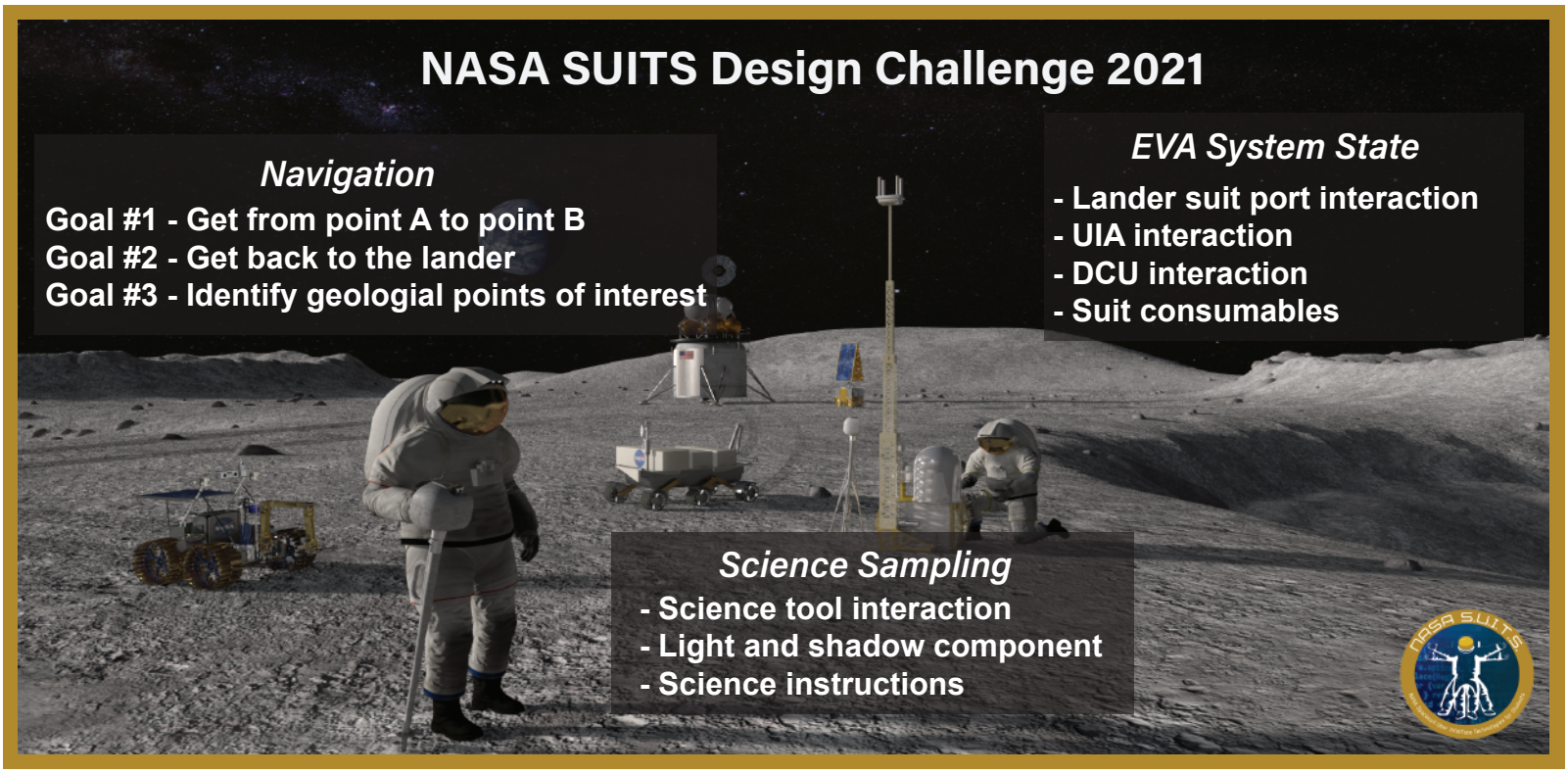
SUITS provides an unparalled opportunity for students to gain real-world, hands-on engineering experience while contributing to NASA's missions. In addition to the professional development skills gained, students participating in SUITS aquire invaluable educational benefits.

Apply classroom knowledge to real-world applications, receive detailed, technical feedback from NASA engineers, build networks with NASA experts and learn about future NASA interships and careers along the way.

Important Dates:

October 21, 2020 - Team Proposals Due
November 17, 2020 - SUITS Selection Announcement
April 19-23, 2020 - SUITS Virtual Test Week

NASA SUITS Design Challenge 2021



Navigation

Goal #1 - Get from point A to point B
Goal #2 - Get back to the lander
Goal #3 - Identify geologial points of interest

EVA System State

- Lander suit port interaction
- UIA interaction
- DCU interaction
- Suit consumables

Science Sampling

- Science tool interaction
- Light and shadow component
- Science instructions

TACKLING THE DESIGN OBJECTIVES

Task #1: Navigation - Implement a nagivation system to help crew members orient and locate themselves on the lunar surface, as well as navigate between various lunar sites.
Task #2: EVA System State - Ensure crew safety throughout the mission by enabling user interfaces to display vital information pertaining to the astronaut's spacesuit data in a non-obstructive way.
Task #3: Geology Sampling - Develop information displays to assist astronuats in conducting science sampling at designated sampling sites, including interaction with lunar tools and assistance in taking field notes.
Task #4: Auxiliary Considerations - User interfaces must adapt to varied lighting on lunar surfaces and craters and establish efficient communication methods between crew members and Mission Control, given spacesuit and EVA constraints.

"SUITS is an amazing technical and communications challenge that elevates student-run projects to real-world applicable design challenges. The opportunity of a lifetime for students with the potential to lead to new opportunities within the NASA organization."
- SUITS Participant

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