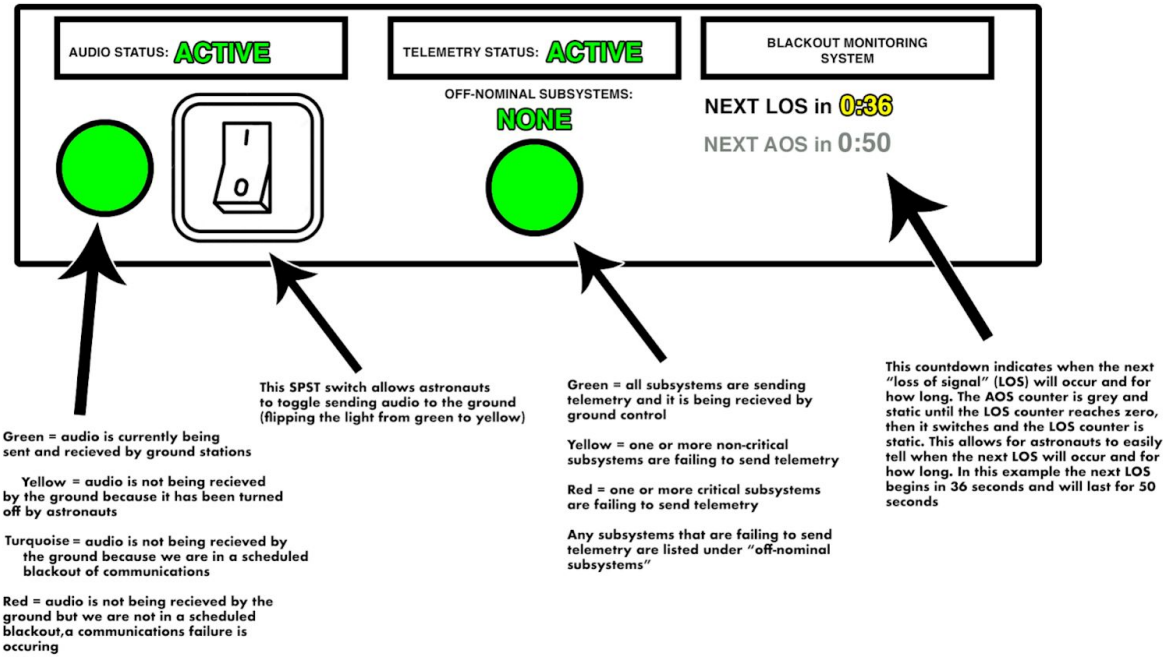
Mercury Communications System Redesign: Simulation User Guide (Feedback form at the end of this document)

Requirements:

- Python (tkinter is preinstalled with Python)
- PIL or Pillow (if not installed, run “pip install PIL”)

Directions:

From your environment of choice, run the file “comms_display_v2.py” and a window with the simulation should open up. A diagram of the simulation and of what the colors indicate is found below:



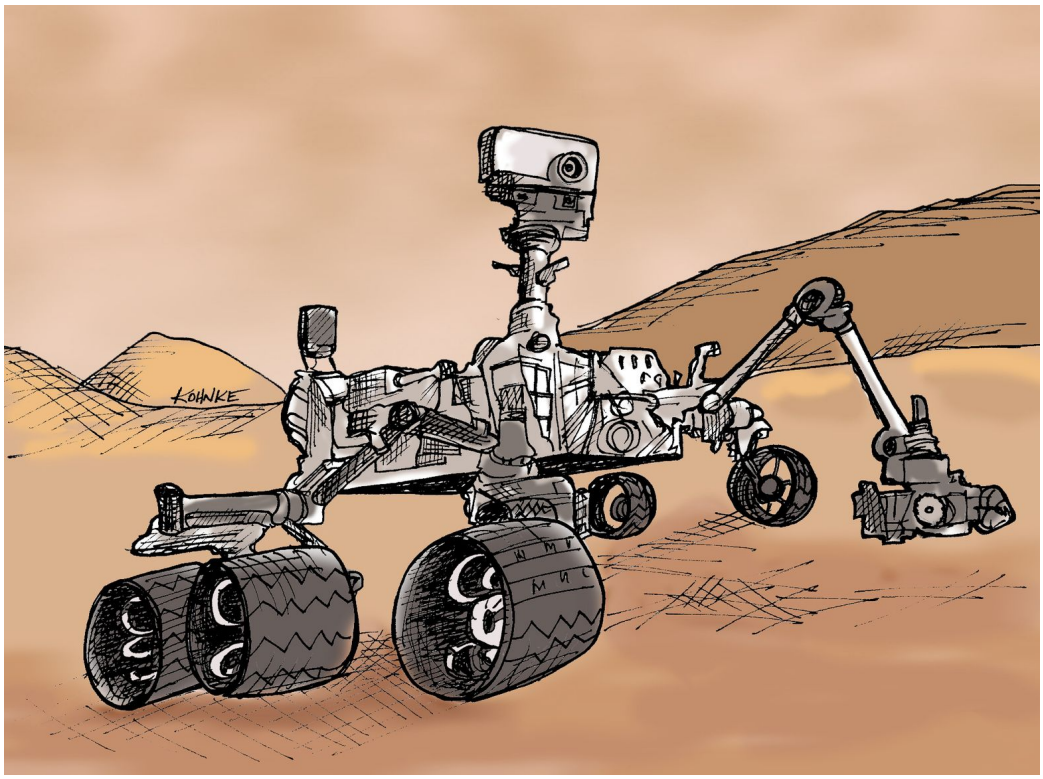
The only manipulable control in this simulation is the switching of audio off and on. This function is automatically switched off during LOS, and cannot be turned back on until AOS, providing a failsafe so that users do not get confused about the state of the system even if they do not recognize they are in blackout.

If you would like to change the LOS and AOS times, at the top of the file there are variables that you can change the values of. (Experiment-specific directions on the next page)

Experiment directions

Experiment lead directions:

1. Choose one of two images:



2. Start the program, make sure to start it at the same time as the subjects do
3. Slowly describe the image and ask the participant to draw it on a piece of paper or with some drawing software. Describe it slowly without giving away what the objects in the image actually are.

4. Every once and a while ask them to show you their drawing to validate it is being drawn (somewhat) correctly
5. When the audio status is anything but Green, we turn off our camera and microphone. When signal is reacquired, we turn back on our camera.
6. After 5 minutes, we stop.
7. Make sure that in the next session you choose the other image. Each image should be used in two different sessions.

Test Subject directions
Subjects must download Python and download Pillow/PIL
To download pillow/PIL mac users can type this in terminal:
“python3 -m pip install --upgrade pip
python3 -m pip install --upgrade Pillow”

1. Join the Zoom meeting in the Google Calendar
2. Listen to instructions carefully and have a couple sheets of paper ready.
3. When instructed, open the simulation and begin taking directions. The experiment lead will give directions to draw something on one of your sheets of paper and will on occasion ask to show you what you are drawing.
4. When LOS occurs, the experiment lead will be muted, so do not be surprised
5. When the simulation prompts you, write down the current state of the system on your second sheet of paper and click OK as soon as you are done to continue the experiment.
6. When the experiment concludes, please take a picture/scan your drawing and email it either to jjk2235@columbia.edu or htm2111@columbia.edu.
7. Please also fill out this Google form to tell us what you thought of this experiment!

Thank you for your participation!

Guide for what to write in the table:
For audio and telemetry:
A: active
I: inactive

Blackout:
Y: in blackout
N: normal communication

Emergency: E (to the side of that row)