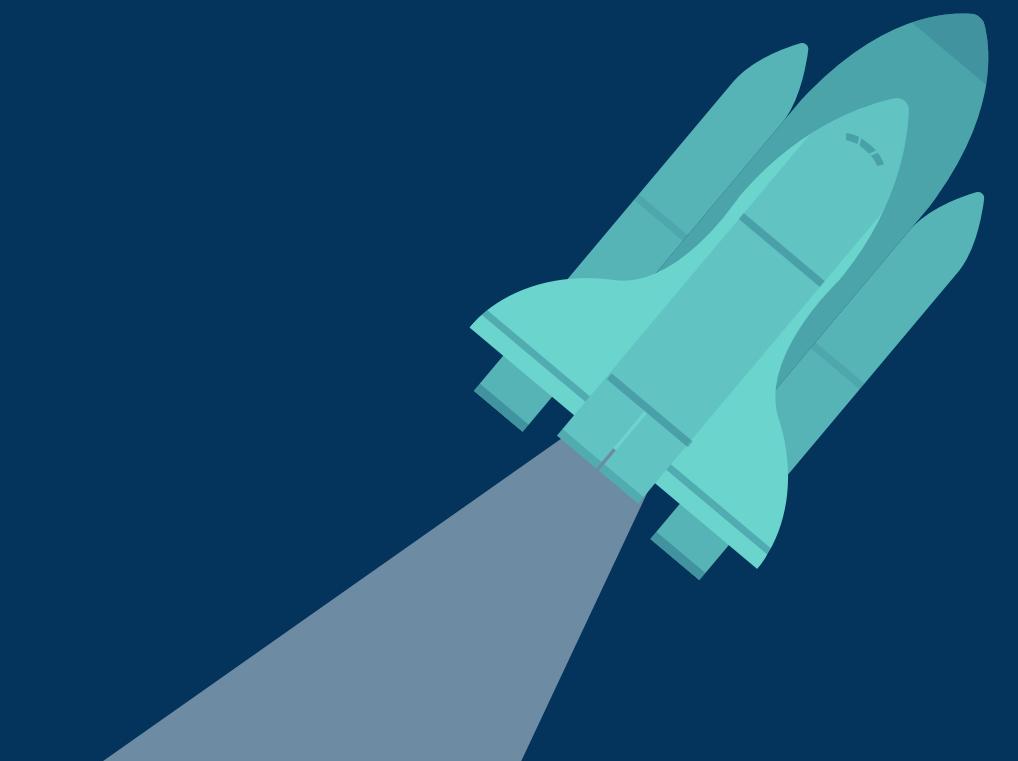


MISSION ARTEMIS

# 2ND COLONY IN MILKY WAY

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# Presentation Outline

- Introduction
- Problematic
- Purposes
- Hypothesis
- Conclusion
- Materials
- Demos
- Background Research
- References
- Who Are We



## • INTRODUCTION

NASA's Artemis missions aim to land the first woman and first person of color on the Moon and involve spending a week performing scientific studies on the lunar surface and lay the groundwork for sending astronauts to Mars.

We feel honored for having the opportunity to help and provide ideas for the Artemis Missions and the ultimate goal of sending astronauts and establishing a colony on MARS.





## • PROBLEMATIC

Our destiny is always to go and see what's further and what's next , so we have to learn how can we survive and thrive in a partial gravity environment to build a new community, but none of this is simple or facil and although nothing is impossible.

So we need to prepare our astronauts with the best technologies we have that will help them constantly on their research by collecting and trasforming data and establishing resource power management.

## • PURPOSES



### **Conducting Research & Collecting Data**

Our focus is to integrate technologies that facilitates the task of conducting research and data collection.



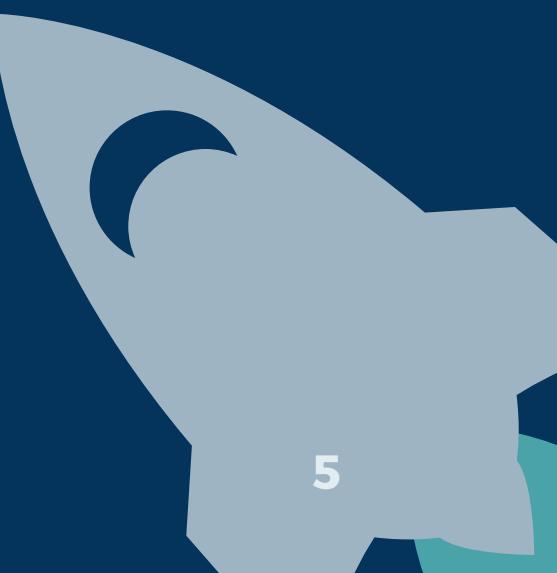
### **Assuring data transmission**

Our focus is assuring fast and reliable data transmission and communication between astronauts and 'Gateway'.



### **Resource management (Power)**

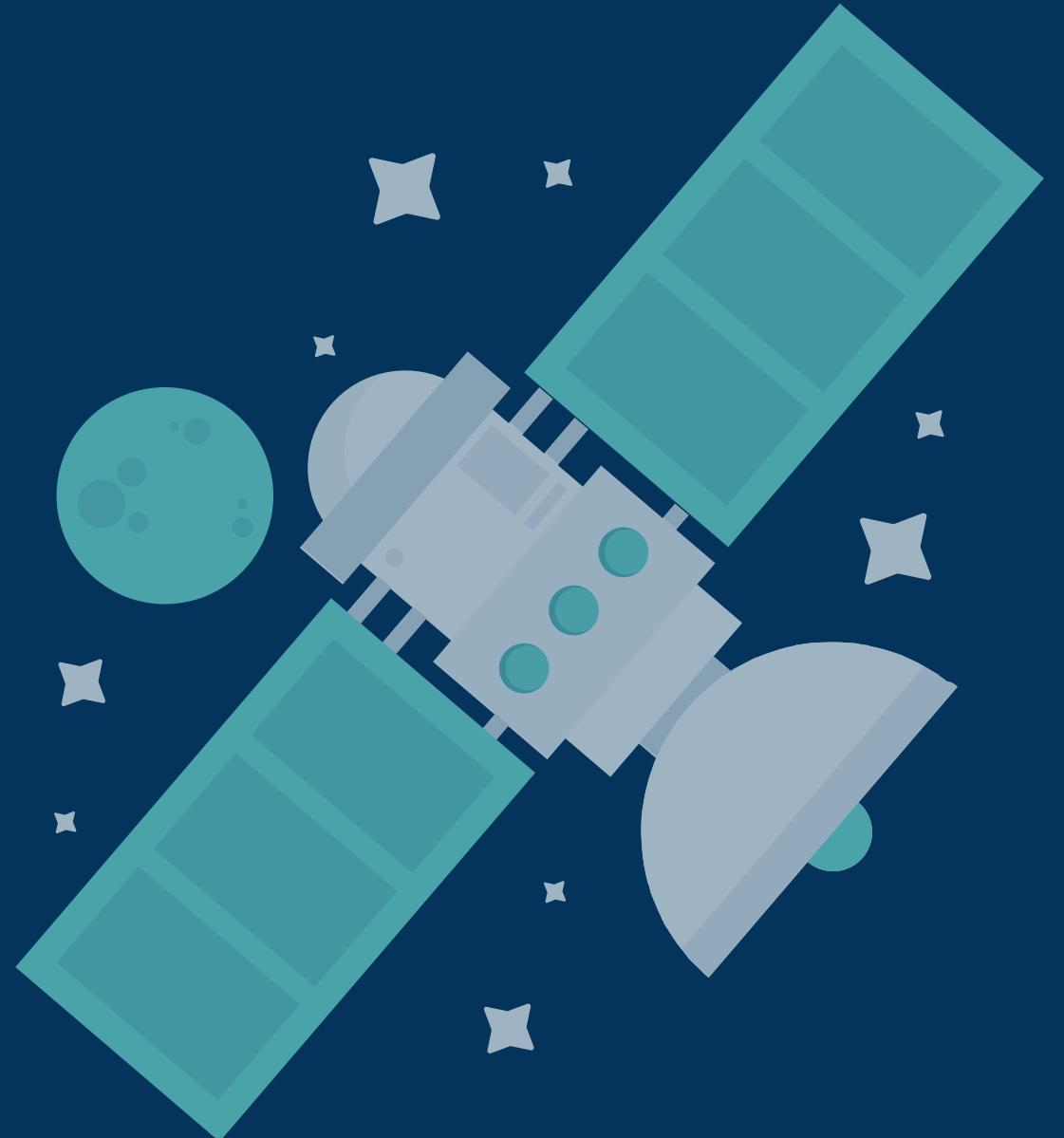
Our focus is to integrate technologies that render power management and generation an automatic task.



## • HYPOTHESIS

For Conducting Research & Collecting Data and also Assuring data transmission we are aiming to use a combination of two inventions that fit well together from a purpose standpoint:  
**BIO-MONITOR & MOBIPV**  
These two technologies will help the astronauts:

- Keep track of their own and each others health.
- Synchronizes between the astronauts , 'Gateway' and ground control.
- Automatically logs steps and allows for video conferencing ,note-taking and text chat.



## • HYPOTHESIS

For Resource management (Power) we are aiming to use two inventions that are based on a technology called Piezoelectric Power Generation:  
Project power shoe & Piezo in Automotive Tires

These two technologies will assure:

- Generation of electrical power with each step or leap that the astronauts make.
- Generation of electrical power with each trip that the rovers make.



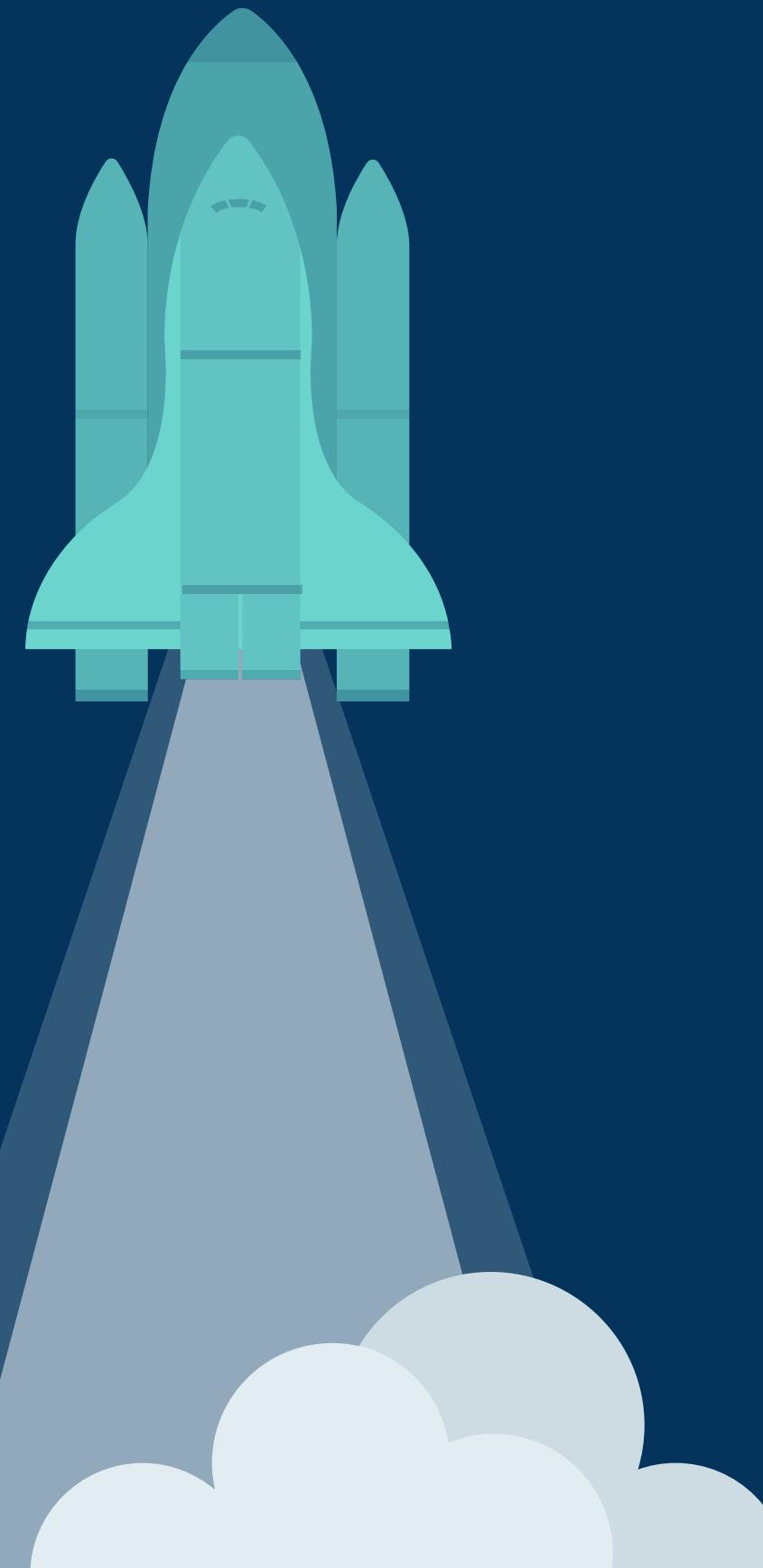
## • CONCLUSION

We can say that these already invented technologies can help with NASA's 'ARTEMIS' missions.

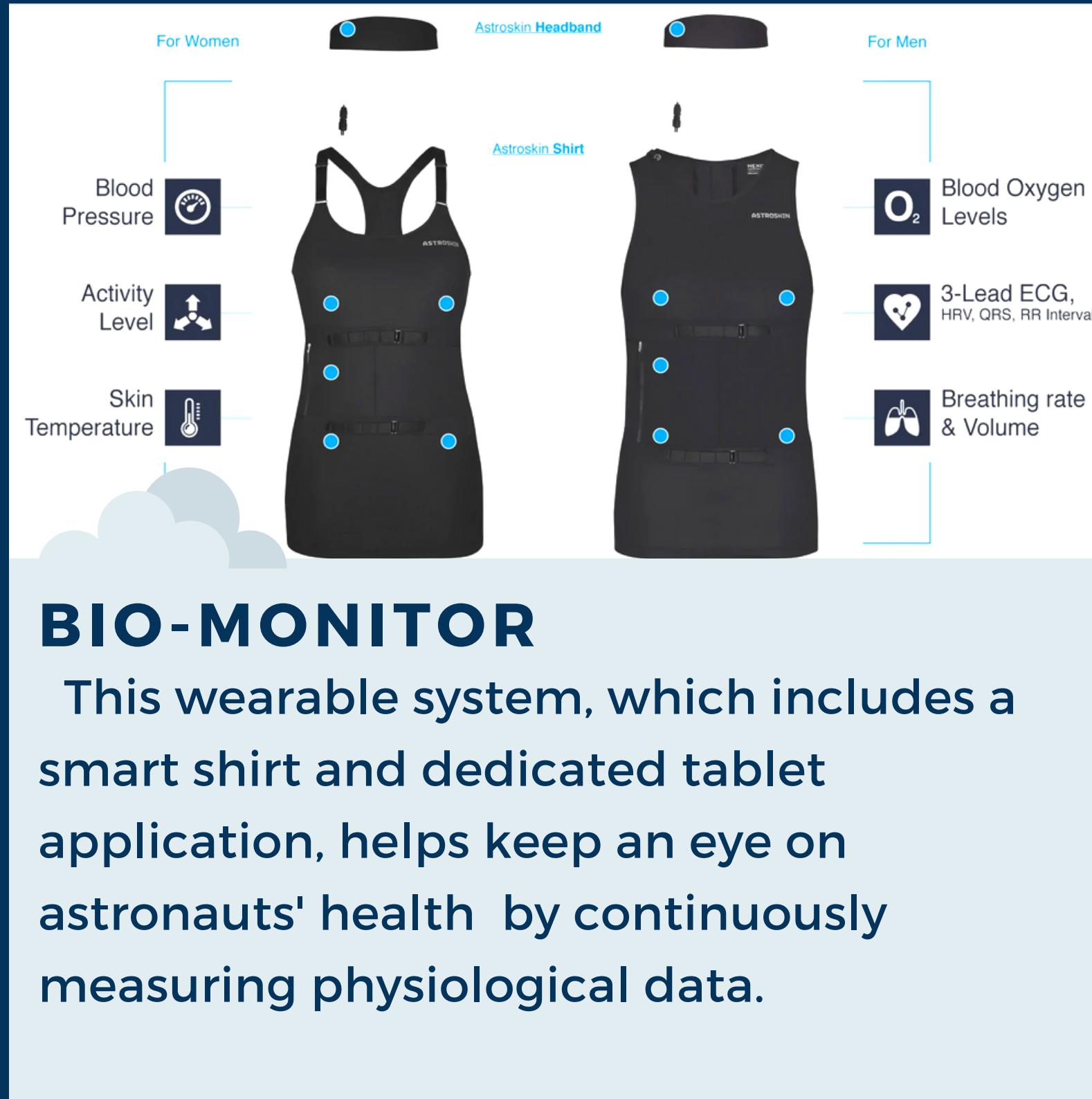
With the added factor that these technologies are already been tested and they are domain specific which allows for an easy and smooth integration.

Each technology has its purpose and has a specific task to do.

Which allows us to reach our goal to help facilitate the astronaut's daily tasks.



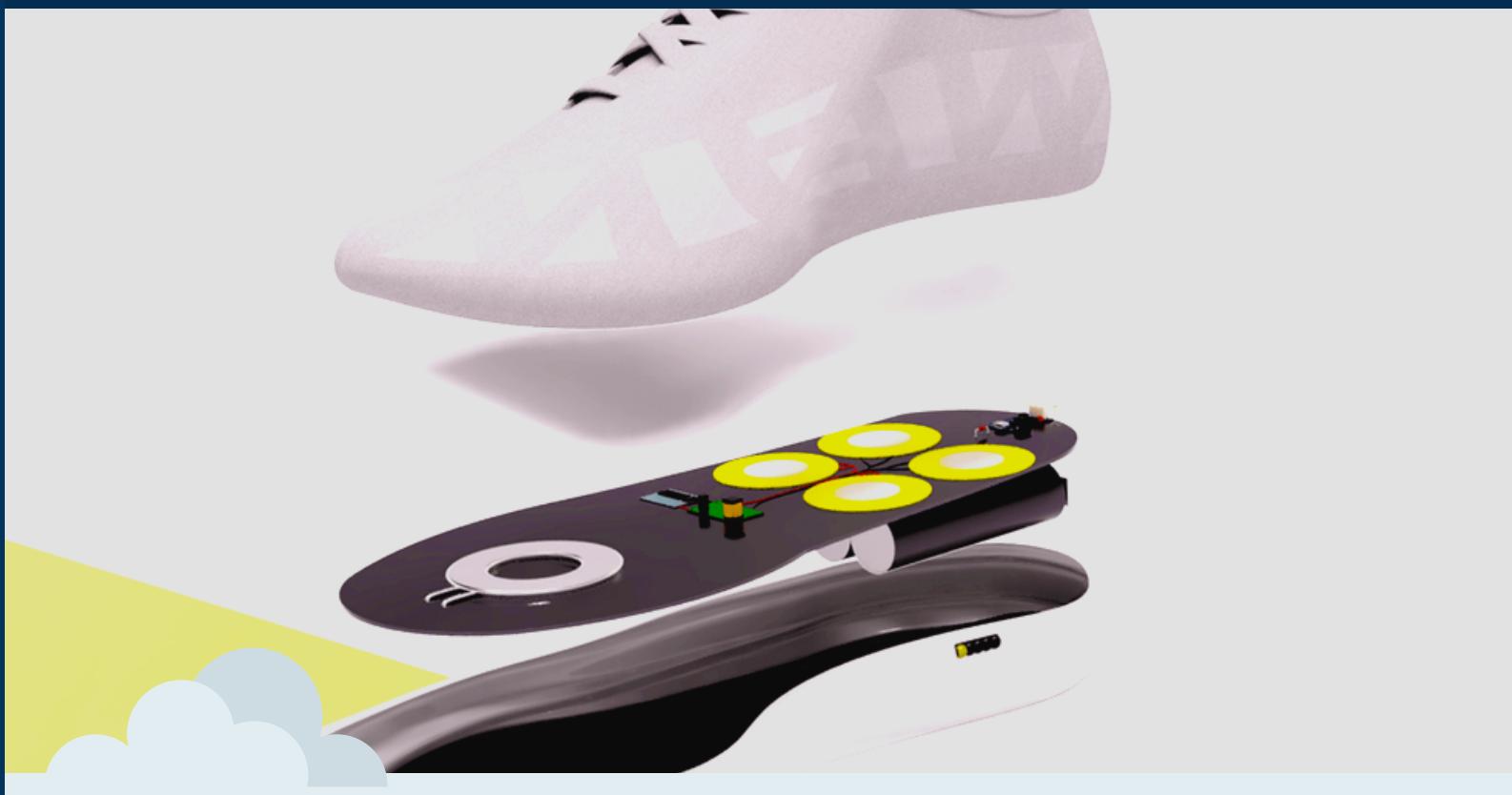
# • MATERIALS



## MOBIPV

The mobiPV is a wearable system that displays each step in a task, synchronises between the astronaut, ground control and third parties, automatically logs steps and communication and allows for video conferencing, note-taking and text chat.

# • MATERIALS



## PROJECT POWER SHOE

The Piezo electric generator is placed inside a Shoe. A shoe has two points where the pressure exerted is maximum and they are the heel and the toe, and this is the exact place where the piezo electric unit is placed.



## PIEZO IN AUTOMOTIVE TIRES

A piezoelectric array is mounted in one or more tires of the vehicle. As the vehicle drives down the road, the tire is flexed during each revolution to distort the piezoelectric elements and generate electricity.

## • BIO-MONITOR



[https://drive.google.com/file/d/1J\\_4BzX1eEmqjXWVeZp2Jf-l1MJnXuOhq/view?usp=share\\_link](https://drive.google.com/file/d/1J_4BzX1eEmqjXWVeZp2Jf-l1MJnXuOhq/view?usp=share_link)

# • POWER SHOE



[https://drive.google.com/file/d/12bpuna-Xg0pmy5DIXhI0AqKAPY\\_p\\_qA-/view?usp=share\\_link](https://drive.google.com/file/d/12bpuna-Xg0pmy5DIXhI0AqKAPY_p_qA-/view?usp=share_link)

- **BACKGROUND RESEARCH :**

In order to create the HAAS system and make sure it fully fulfills its purpose, we had to do an extensive research on different subjects and technologies and from different sources such as the IEEE Library and Government sites to make sure that we are following the right track.



# • REFERENCES

- **Bio Monitor :**
  - <https://www.asc-csa.gc.ca/eng/sciences/bio-monitor.asp>
- **MobiPV :**
  - <https://spaceref.com/newspace-and-tech/esas-mobipv-wearable-system-enhances-astronaut-productivity>
- **Piezo Electric :**
  - <https://ieeexplore.ieee.org/abstract/document/7343993>
  - <https://www.altenergymag.com/article/2017/12/piezoelectric-power-generation-in-automotive-tires/27642>
  - [https://www.nasa.gov/directorate/spacetech/strg/nstrf\\_2017/Tunable\\_Piezoelectric\\_Energy\\_Harvester](https://www.nasa.gov/directorate/spacetech/strg/nstrf_2017/Tunable_Piezoelectric_Energy_Harvester)

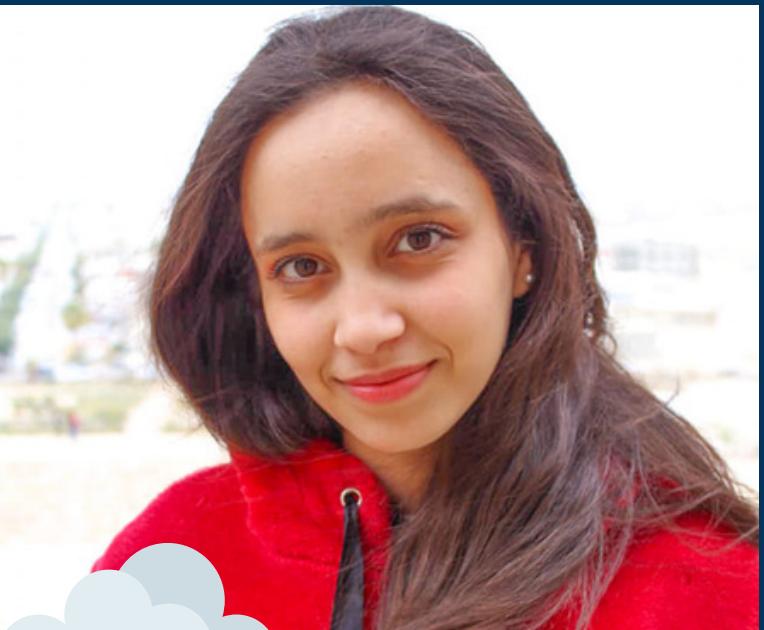


# • Who Are We



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