



# ELEPHANT BEHAVIOR MONITORING ANKLET

## Team Trunk Tech

SDSU ME and ECE Joint Project  
2023 - 2024



### Overview

The San Diego Zoo Wildlife Alliance, the sponsor of this project, has teamed up with Trunk Tech to develop an anklet for African elephants to monitor their behavior patterns. Utilizing LoraWAN technology, the device transmits data logging status and incorporates an accelerometer for movement data collection. Designed with a tamper-proof enclosure, it withstands elements in desert conditions and is resistant to water and high-impact forces. This collaboration seeks to leverage technology to safeguard wild elephant populations, starting with deployment at their partner site in Kenya.

### Acknowledgments

Trunk Tech would like to thank the following for sponsoring the completion of our device:

**San Diego Wildlife Alliance**

Katie Garwood, Kyra Swanson, Ian Ingram, and the Elephant Care Staff

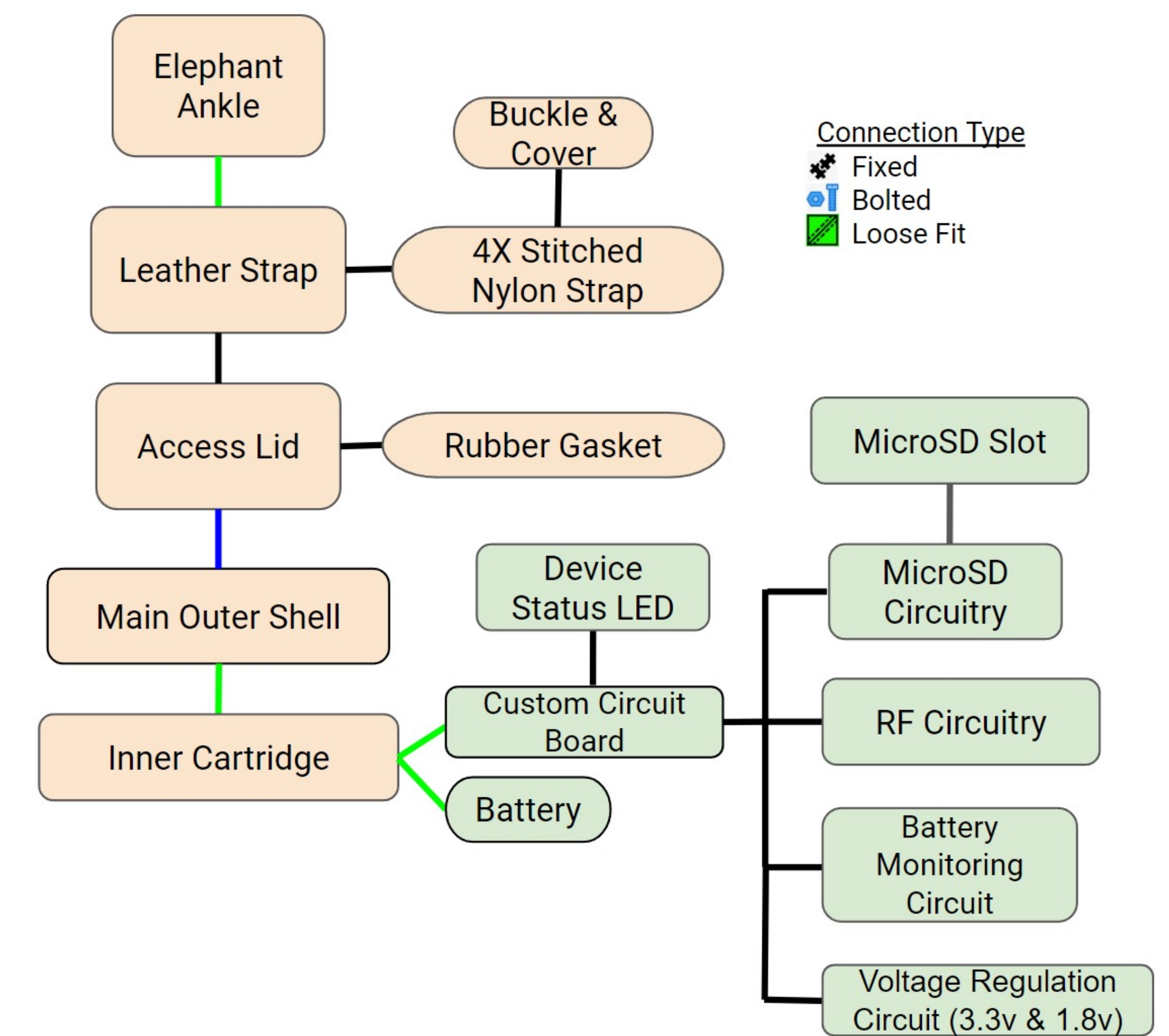
**San Diego State University**

Dr. Scott Shaffar and Professor Barry Dorr

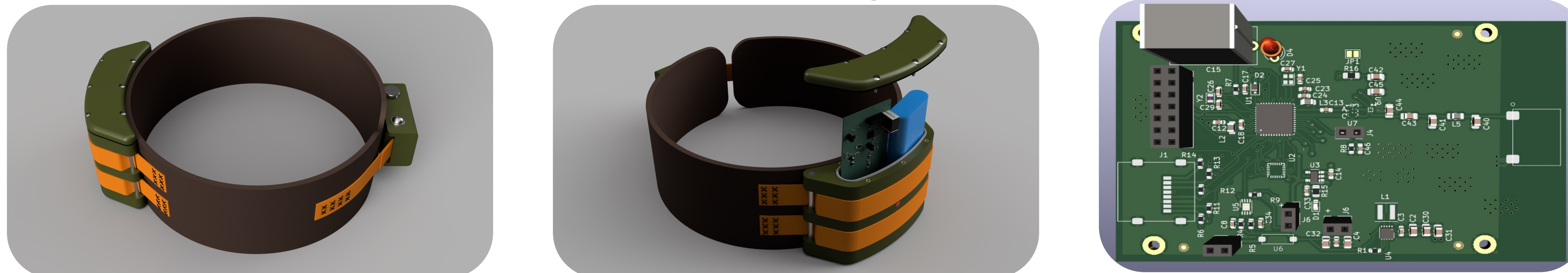
### Testing and Manufacturing



### System Level Diagram



### Final Design



Connor Martorana  
Mechanical Engineering



Ryan Kiok  
Mechanical Engineering



Alex Cherry  
Mechanical Engineering



Rachael Gerrard  
Mechanical Engineering



Courtney Chase  
Electrical Engineering



Roberto Montano Bermudez  
Electrical Engineering



Jacob Flaxman  
Computer Engineering



Eduardo Tovar  
Electrical Engineering



Anthony Vasquez  
Computer Engineering