

Structural Health And Rupture Detection (SHARD)

Team members (CSE): Julian Herrera and Matthew Manley

Team members (Other Majors): Matthew Meesit, John Bruce, Paul Awad

CSE Faculty: Marius Silaghi

Client: Felix (GSA for the other majors Senior Design class)

Goal and Motivation

- Overall goal is to create shield tiles to protect against space debris in low orbit
- Our goal is to create a user interface that informs the user when the sensors detect a collision or rupture.
- We will also create a program that tells the microcontroller to activate a repair system is a rupture occurs



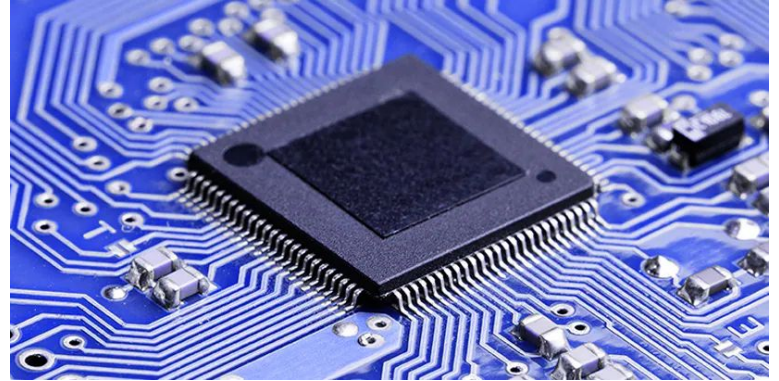
Approach

- Visualize the physical model of the structure
- Interact with real time data that is fed into the application from outside sensors
- Choose what to do when sensor data reveals a breach in the structure



Technical Challenges

- Collecting data from the sensors and turning it into understandable information
- Knowing which tile in the physical model corresponds to a tile in the virtual model
- Learning more about microcontrollers (or other electronics that interface with sensors) and how they interact with computers



Milestone Task Matrix

Task	Julian	Matthew
Compare and select Technical Tools	Programming language for GUI	Arduino vs Raspberry PI vs PIC
"hello world" demos	Programming language for GUI	Arduino vs Raspberry PI vs PIC
Resolve Technical Challenges	Test programs	Microcontroller research
Compare and select Collaboration Tools	Version Control System	Communication
Requirement Document	50%	50%
Design Document	25%	75%
Test Plan	75%	25%

Questions?