DistoY

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Project Abstract

DistoY is a cave surveying device aimed at providing cavers with a larger variety of functionality for surveying at a much lower cost than current products on the market. The DistoY will allow for taking distance measurements that can also record angles, track cardinal direction, and store data for later use. Furthermore, it will also be built to survive in the harsh conditions of caves, such as being dropped from heights, exposed to lots of dust, cold temperatures, and wetness or submersion in water.

User Stories

As a caver, I want to measure distance between two different points.

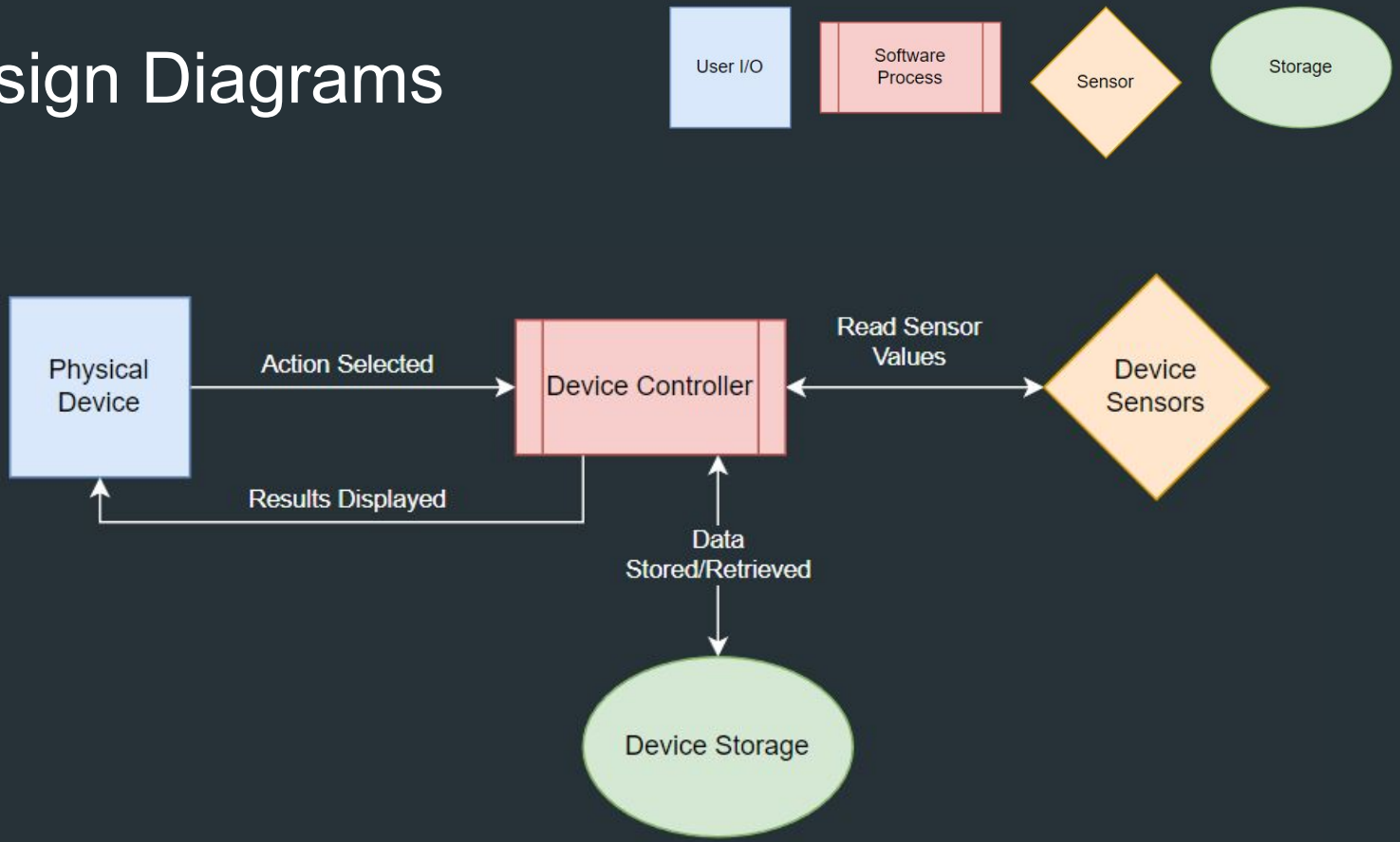
As a caver, I want to ensure that all measurements are accurate and within tolerable error margins.

As a caver, I want to determine the angle of a distance measurement.

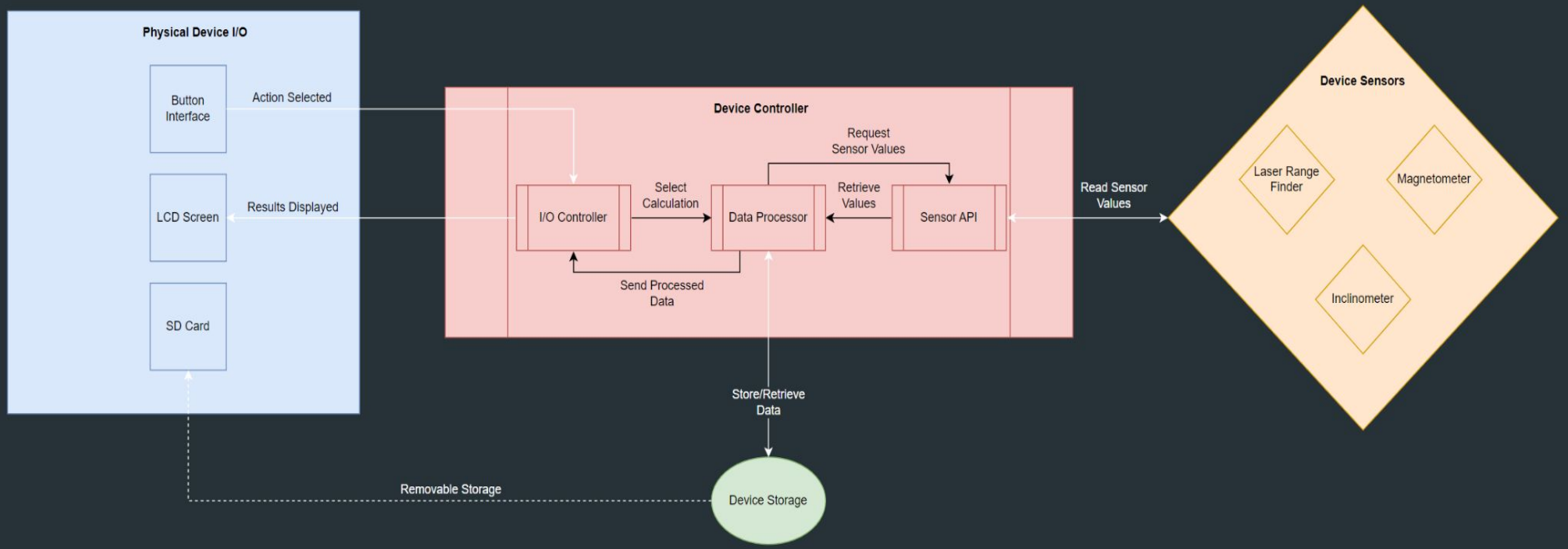
As a caver, I want to store measurements for future use.

As a caver, I want to know what cardinal direction I am generating a measurement towards.

Design Diagrams



Design Diagrams

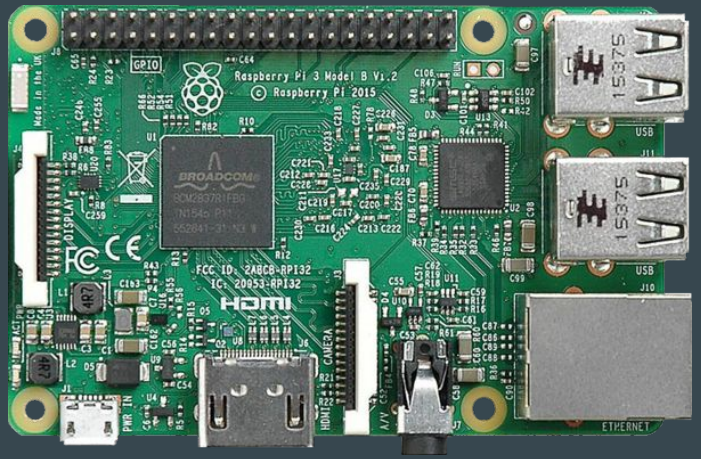


Major Project Constraints

- Environmental
  - Leave No Trace (LNT)
  - Fragile micro-ecosystems
- Economic
  - Funding
  - Obtaining physical components
- Scope/Time
  - Hardware-based device
  - Testing in appropriate environments

Review of Project Progress

- Major sensors/components selected
- Microcontroller chosen
- Researching appropriate libraries



Expected Accomplishments

- Physical prototype
- Implementation of the Sensor API
- Measurement and calibration functionality
- Implementation of I/O

Expected Demo

- Display of the physical device
- Demonstrate functionality for cave surveying
- Walkthrough of the test-driven development