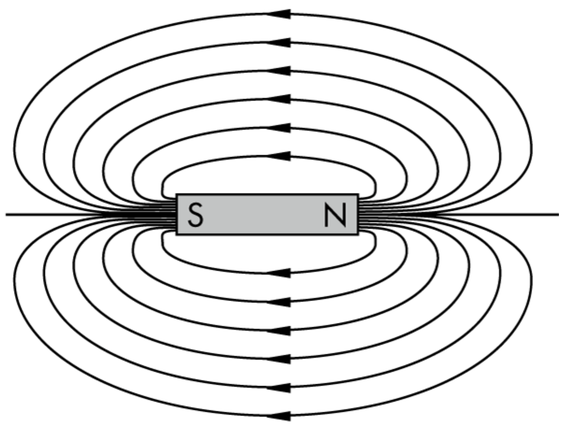
ARMM: Automated Robotic Magnetics Mapper

Instructor: Bobby Compton
Mentor: Dr. Byron Beddingfield
Team: Gabrielle Johnson, Geoffrey Balshaw, Iason Katsaros, Kyle Northrop, Christopher Webb

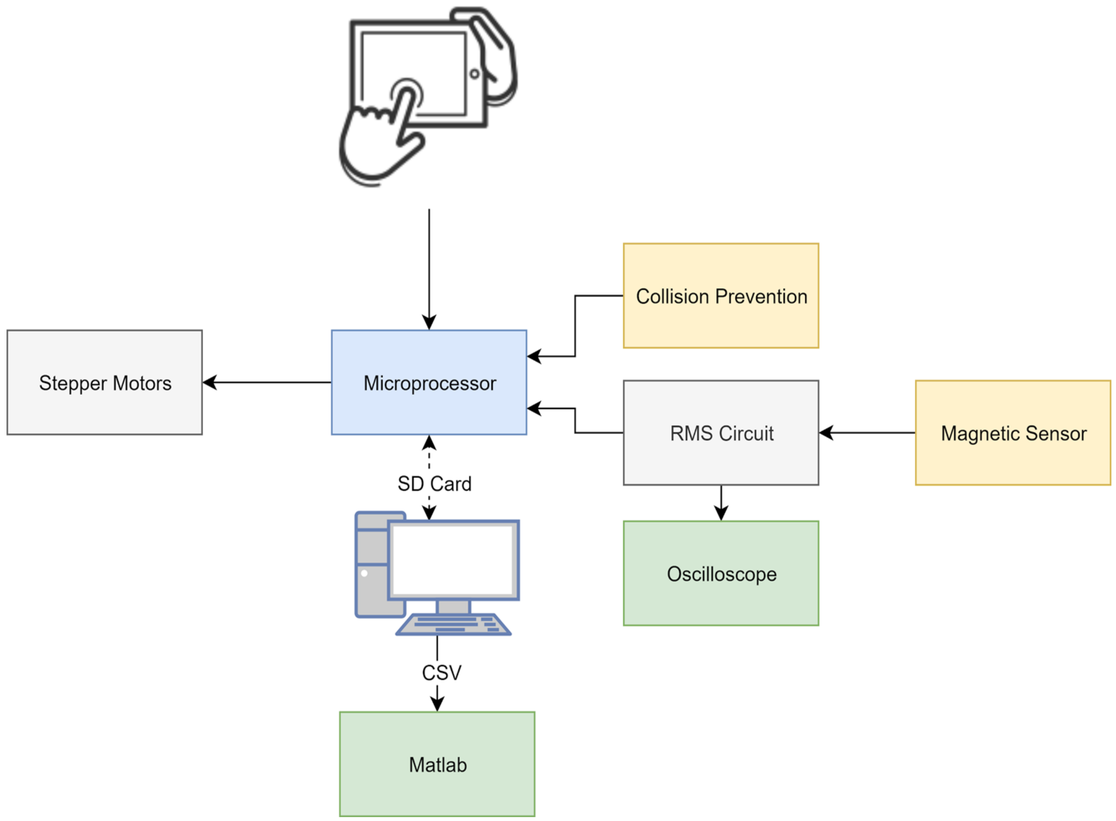
Problem Statement

- Electrical devices create magnetic fields around them
- Measurement of these magnetic properties allows for safe, efficient devices
- Handheld measurements are prone to errors
- Our device makes these measurements quickly and accurately at a low cost

Magnetic Flux



Block Diagram



Design Challenges

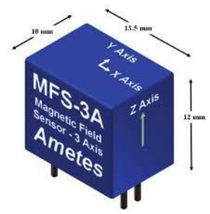
- Automating the operation of the device
- Designing RMS PCB
- Collision Prevention
- Transfer of data between different components

Product Requirements

- Must detect all three axes of magnetic field vectors
- Must map a space >28 cm^3
- Must detect distance from object being measured
- Must log data into CSV file to be exported to MATLAB

Components

Movement and Sensing



Interface and Processing