Requirements and Constraints

Functional Requirements

- Able to detect the approximate location of a phone when placed on the charger
- Able to automatically move the coils within the charger to the center of the phone placed

Resource Requirements

- Microcontroller (Arduino)
- Wireless charger coil (Qi)
- Sensor to detect currents from the phone and wireless charger coils

Physical Requirements

- Horizontal width: 3x the phone width
- Total area slightly bigger than the size of one phone

Aesthetic Requirements

- Needs to be a practical size for any kind of tablet or phone.
- Needs to look sensible and appealing on the eyes
- Charging area needs to be marked on the top of the device

Economic/Market Requirements

- Must be affordable
- Must be easy to use

Environmental requirements

- Use the principles of sustainable engineering to engineer sustainable principles

UI requirements

- Must be simple enough to start charging when a phone is placed on the charger regardless of orientation

Engineering Standards

- IEEE 2405-2022 Standard for the Design of Chargers Used in Stationary Battery Applications
    - While this standard mainly refers to stationary chargers as opposed to wireless ones, we believe it still applies to our project. This standard deals with the potential battery charger performance and environmental considerations to take into account when constructing wireless chargers.
- IEEE 1657-2018 Recommended Practice for Personnel Qualifications for Installation and Maintenance of Stationary Batteries
    - This standard deals with stationary battery installation and the recommended knowledge for maintaining stationary batteries. When it comes to building our wireless charger, we will need to be mindful of the correct installation procedures of setting up the charger itself, as well as maintaining it from a safety perspective.