

Senior Capstone Design

Project: Polar Alliance

Team: Polar Bears

Date: 11/14/2019

Product Requirements

1 Objective:

The objective of this document is to clearly layout the specifics/requirements for Tesla Coil door security system.

2 Scope:

The scope of this document is to establish the requirements in an organized manner.

3 References:

This is place to cite any standards, regulations, etc. relevant to the requirements...

4 Functional Requirements:

User Interface Requirements:

Ability to arm and disarm security system.		
Warning system.		

What the product should do:

Produce an electrical shock to intruders from the handle of a door.		
Sense an approaching intruder.		

5 Mechanical Requirements:

Apparatus:

Mechanically controlled arm for demonstration.		
A closed environment for display.		

Spatial Requirements:

Retrofitting door handle that is instable into existing wooden doors.		
---	--	--

6 Electrical Requirements:

Telsa Coil:

Produce variable frequencies.		
2-inch arc \approx 150 kV		

7 Software Requirements:

Functionality

Ability to arm and disarm security system.		
--	--	--

8 Cost Requirements:

Prototype Cost:

Maximum cost to build proof-of-concept prototype	\$ 1,000	
--	----------	--

9 Schedule Requirements:

Major Milestones:

Approval of Requirements	11/21/2019	
Concept Design Review	2/7/2020	
EPO order of Long Lead Parts	12/8/2019	
Detailed Design Review	2/7/2020	
Engineering Release of Drawings	3/2/2020	
Complete Prototype Build	3/6/2020	
Finish Design Testing	4/1/2020	
UI Design EXPO	4/26/2020	
Final Reports and Drawings to client	5/4/2020	