

Hazard Analysis

Mechatronics Engineering

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Table 1: Revision History

Date	Developer(s)	Change
October 19th, 2022	Jessica Bae Oliver Foote Jonathan Hai Anish Rangarajan Nish Shah Labeeb Zaker	Initial Documentation

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[You are free to modify this template. —SS]

1 Introduction

[You can include your definition of what a hazard is here. —SS]

2 Scope and Purpose of Hazard Analysis

3 System Boundaries and Components

4 Critical Assumptions

[These assumptions that are made about the software or system. You should minimize the number of assumptions that remove potential hazards. For instance, you could assume a part will never fail, but it is generally better to include this potential failure mode. —SS]

5 Failure Mode and Effect Analysis

6 Safety and Security Requirements

[Newly discovered requirements. These should also be added to the SRS. (A rationale design process how and why to fake it.) —SS]

7 Roadmap

[Which safety requirements will be implemented as part of the capstone timeline? Which requirements will be implemented in the future? —SS]

Table 2: FMEA Table

Design Component	Failure Modes	Causes of Failure	Effects of Failure	Detection	Recommended Action
Error Handler	Security Compromised	<ul style="list-style-type: none"> • Fail-open security check • Error data improperly protected • Malicious cyber attack 	Participant data will be made vulnerable to exploitation	Error handler returns strange or incomplete results	Device enters data-lockdown mode, preventing data from being accessed until security issue is resolved.
	Device not starting	<ul style="list-style-type: none"> • Device is faulty • Battery has died 	Device not turned on, thus no monitoring	Battery dead logo appears when turning on the device	<ul style="list-style-type: none"> • Charge the device • Change batteries if needed