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

Contents

[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	• 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.
	Errors are strange or incomplete	• Stack overflow • Memory leak • Error previously unaccounted for	Persons responsible for responding to errors will be unable to daignose and address the underlying issue	Error comes in unexpected form, or strange	• Use different channels to handle device logic and error handling • Ensure that strange errors either return as Optional or Empty List (i.e. any value but null)