Table 1: Revision History

Date	**Developer(s)**	**Change**
Date1	Name(s)	Description of changes
Date2	Name(s)	Description of changes
...	...	...

Hazard Analysis
Mechtronics Enigeering

Team 32, Wingman, SmartVault
Edward He
Erping Zhang
Guangwei Tang
Peng Cui
Peihua Jin

Contents

1 Introduction

2 Component Overview

The project can be divided into five different main components. Those components are listed in the paragraphs below.

2.1 Movement of Camera

2.2 Human Body Detection

A good detection method should be used so that the human body can be detected by the program in the images provided by the camera. The movement of the human body shoudl also need to be detected to help the camera to judge its angular position.

2.3 User Interface

2.4 Database

2.5 Objection Detection

This system is responsible for detecting any moving object in the area and identifying each object with unique set of characteristics. The is the main logical system for smartVault to help locate a "lost" item.

3 Safety Considerations and Connection with Requirements

3.1 Movement of Camera

3.2 Human Body Detection

3.2.1 Human Body not Detected

When a human presents in the room and the images have been shown in the computer, the program fail to detect the human body in the screen.
Related Requirements: IPR1

3.2.2 Wrong Human Body Detected

When the software component of the oobject detects a human body shown in the camera, the body shown on the screen is not actually a body of a person.
Related Requirements: IPR1

3.2.3 Body Movement not Detected

When people moves in the room and thhe images has been sent to the computer, the program cannot detect the movement of the body.
Related Requirements: IPR4

3.2.4 Wrong Body Movement Detected

When the program detects the movements of human body, only part of movement or wrong movement is identified by the program.
Related Requirements: IPR4

3.3 User Interface

3.4 Database

3.5 Object Detection

SmartVault will return error message when connection between camera and the object detection system is lost. When connection is lost, object detection system will not be able to monitor moving objects.

4 FMEA Worksheet

Table 1: The FMEA Table

Components	Failures	Cause of Failure	Recommended Action
Movement of Camera	N	N	N
Human Body Detection	Human Body not Detected	a. Detection method failure b. Wrong posture of human	a. Restart the program b. request help from development team
	Wrong Human Body Detected	a. Detection method failure	a. Restart the program b. Request help from development team
	Body Movement not Detected	a. Detection method failure b. Human body moves too fast	a. Restart the program b. Request help from Development team
	Wrong Body Movement Detected	a. Detection method failure	a. Restart the program b. Request help from development team
User Interface	N	N	N
Database	N	N	N
Object Detection	N	N	N

Failure Mode and Effects Analysis							
Components	**Failure Modes**	**Causes of Failure**	**Effects of Failure**	**Severity**	**Recommended Actions**	**SR**	**Ref**
Movement of Camera	NA	a. NA b. NA	a. NA b. NA	a. NA b. NA	a. NA b. NA	NA	H3-1
	NA	NA	NA	NA	NA	SR6	H3-2
Human Body Detection	NA	a. NA b. NA	a. NA b. NA	a. NA b. NA	a. NA b. NA	NA	H3-1
	NA	NA	NA	NA	NA	SR6	H3-2
User Interface	NA	a. NA b. NA	a. NA b. NA	a. NA b. NA	a. NA b. NA	NA	H3-1
	NA	NA	NA	NA	NA	SR6	H3-2
Database	NA	a. NA b. NA	a. NA b. NA	a. NA b. NA	a. NA b. NA	NA	H3-1
	NA	NA	NA	NA	NA	SR6	H3-2
Object Detection	NA	a. NA b. NA	a. NA b. NA	a. NA b. NA	a. NA b. NA	NA	H3-1
	NA	NA	NA	NA	NA	SR6	H3-2

Table 2: FMEA Table Part 1