



THE UTILISATION OF NIST AS A CYBERSECURITY FRAMEWORK IN HIGHER  
EDUCATION INSTITUTES DURING COVID-19

**Functional Specification**

by

Thomas Hughes

C00231519

JANUARY 28, 2022

Supervisor: Christopher Staff

## Table of Contents

Introduction.....	3
Document Purpose.....	3
Project Scope .....	3
What is the product supposed to be?.....	3
What will the application do? .....	3
Tools .....	3
Who is going to be using the application? .....	3
Context Diagram and Use Cases.....	4
Malicious user on unprotected network.....	4
Malicious user on protected network – using NIST .....	5
FURPS+ .....	6
Functionality .....	6
Usability.....	6
Reliability.....	6
Performance .....	6
Supportability.....	6
Metrics .....	6
Inspiration .....	7

## **Introduction**

### Document Purpose

The main function of the Functional Specification is to give a detailed description of how the project, namely the Cybersecurity Readiness Survey, will function. This is broken into the sections of what the application should do.

## **Project Scope**

### What is the product supposed to be?

The product of this research is a survey that is sent out to HEIs to determine their NIST capabilities.

### What will the application do?

The application is a NIST-based cybersecurity survey that will determine their NIST capabilities.

### Tools

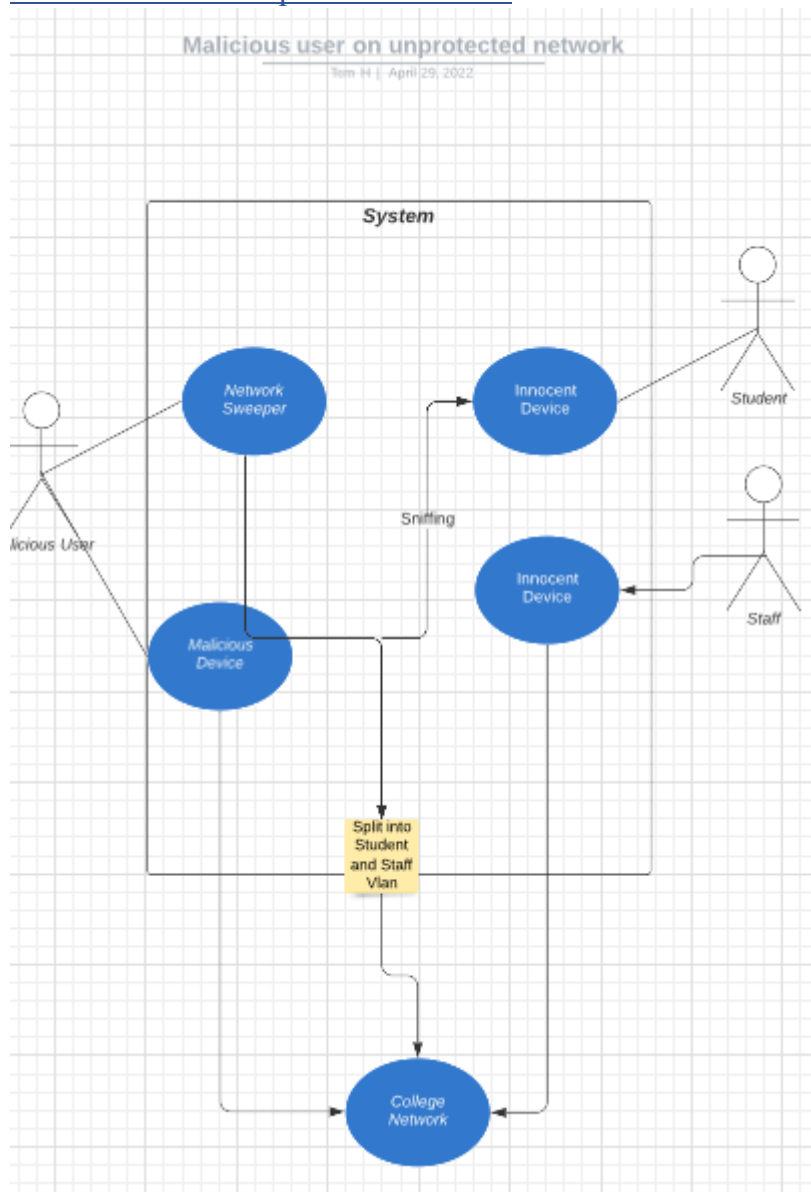
The primary tool used for the NIST-based cybersecurity readiness research survey is the website SurveyMonkey. SurveyMonkey allows creators to construct a survey with huge range of variety, specifically to design what is needed for.

### Who is going to be using the application?

The user group of this product is primarily for higher education institutes, and the employees that operate the IT department and have access to the corresponding policies. Ideally, those contacted will be in a senior position, with access to a better hierarchal view of the HEI.

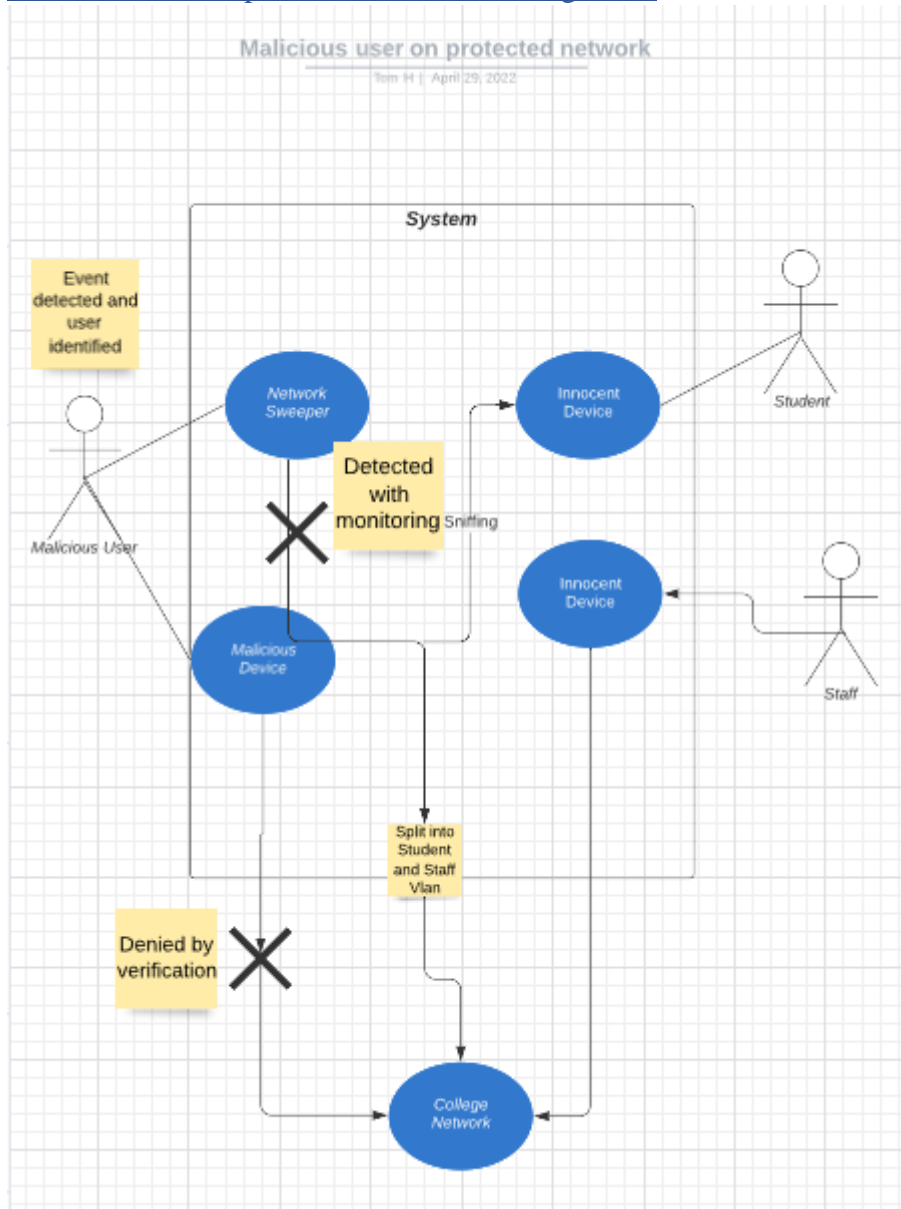
# Context Diagram and Use Cases

## Malicious user on unprotected network



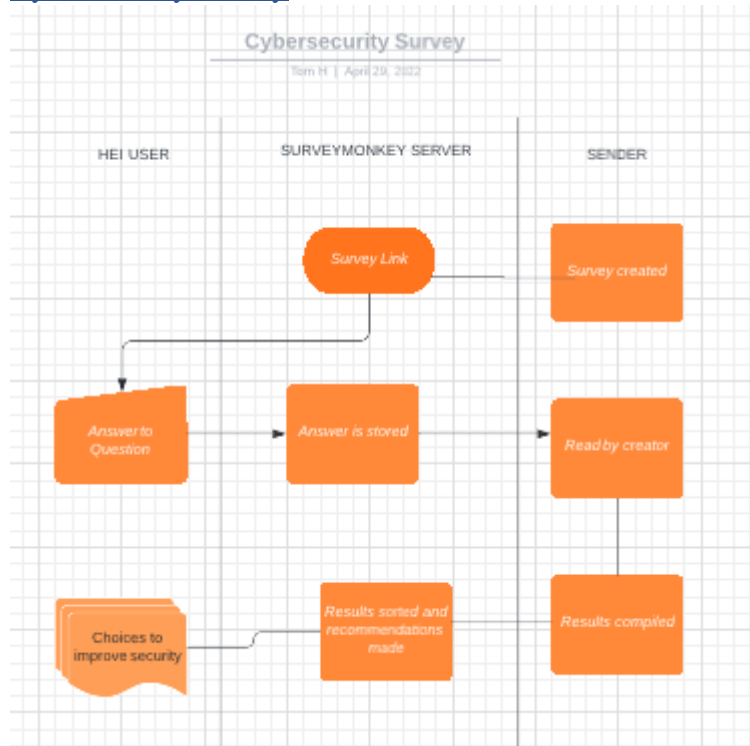
[FIG 1]

## Malicious user on protected network – using NIST



[FIG 2]

## Cybersecurity Survey



[FIG 3]

### FURPS+

#### Functionality

The survey has a direct primary functionality to ask the user questions, giving them options to answer, intaking the answers and producing the results to be viewed.

#### Usability

The survey's usability is that it provides, simple, easy to read questions and allows users to enter their answers clearly by adding text or selecting buttons. These features correspond clearly with what is being asked. The survey is provided by SurveyMonkey, and allows for aesthetically pleasing options for developers to pick from.

#### Reliability

The product will be available online consistently. Dependant on the user's internet connection, and SurveyMonkey's online resilience. If these sites are down, there will be no way to access the questions. In that instance, they can be asked personally.

#### Performance

The time to answer and record will be instant.

#### Supportability

The design is testable. It is not extensible, nor serviceable. Answers can be monitored as it is hosted on an online web page.

#### Metrics

The metrics of the project is defining the success conditions of this project.

The following metrics for the UTILISATION OF NIST AS A CYBERSECURITY FRAMEWORK IN HIGHER EDUCATION INSTITUTES DURING COVID-19 project are;

- Understand in greater detail the cybersecurity preparedness of Higher Education Institutes in Ireland during the COVID-19 period
- Understand how well the HEIs conform to the NIST cybersecurity framework when comparing their current setup using a NIST CSF audit
- Establish contact with HEIs, specifically IT employees, and gain information on the current cybersecurity landscape
- Report any findings in this research, process this, and develop responses and recommendations to help improve these HEIs
- Finish all documents and submit within the timeframe

Additionally, the metrics for this particular element of the project, the Cybersecurity Readiness Survey are;

- Construct a survey that collects relevant information from Higher Education Institutions
- Design it to be easy to read and answer
- Allow the results to be processed and formulated so that
- At least half of the recipients respond

Achieving these will be considered success for this project.

### **Inspiration**

The main inspiration of the topic came from my own life at the time. Studying from home at during the COVID-19 made me curious as to how secure HEIs were and what standard they were at. The NUIG cyber attacks and HSE attack in 2021 were big influences too.