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Template based on the Centers for Medicare & Medicaid Services, Information Security & Privacy Management’s Assessment

**Security Assessment Report**

Version N.0

January 1, 1900

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# Summary

Executive Summary Here: The system is vulnerable to various security threats, such as unauthorized access and system failure. Recommendations include implementing secure coding practices, regular software updates, and restricting physical access to the system. Additionally, conducting regular security assessments and educating users on best practices can help ensure the system's security.

## Assessment Scope

I used used stackoverflow, geeksforgeeks, MPLAB X, google, slideshows on avr assembly, and different websites.

## Summary of Findings

Of the findings discovered during our assessment, 4 were considered High risks, 2 Moderate risks, 3 Low, and 1 Informational risks. The SWOT used for planning the assessment are broken down as shown in Figure 2.

Graphical user interface

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Figure 1. Findings by Risk Level

Explain above and link to full table of explanation of top risks like Figure 3.

Chart, diagram

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Figure 2. SWOT

The issues that were addressed from the SWOT Analysis were access controls, encryption, physical security, and code was uploaded to github for better security.

## Summary of Recommendations

# Goals, Findings, and Recommendations

## Assessment Goals

The purpose of this assessment was to do the following:

* Ensure that the system was in compliance with regulations you had to deal with or any other requirements (to include the assignments themselves).
* Determine if the application was securely maintained.
* Etc.

## Detailed Findings

Ensure each vulnerability is thoroughly explained, specific risks to the continued operations are identified, and the impact of each Threat or Weakness is analyzed as a business case. Ensure these are linked to Table 1 when describing the Risk Value. This is not the fixes – it’s the description of the problems found. The fixes go in the next section (for ease of lookup using TOC) - build this off your checklist, SWOT, and risk assessments.

## Recommendations

Fix the access controls, physical security, Arduino, and online repository.

# Methodology for the Security Control Assessment

**3.1.1 Risk Level Assessment (delete this text: you don’t have to change 3.1.1)**

Each Business Risk has been assigned a Risk Level value of High, Moderate, or Low. The rating is, in actuality, an assessment of the priority with which each Business Risk will be viewed. The definitions in Table 1 apply to risk level assessment values (based on probability and severity of risk). While Table 2 describes the estimation values used for a risk’s “ease-of-fix”.

Table 1 - Risk Values

| Rating | Definition of Risk Rating |
| --- | --- |
| High Risk | Exploitation of the technical or procedural vulnerability will cause substantial harm to the business processes. Significant political, financial, and legal damage is likely to result |
| Moderate Risk | Exploitation of the technical or procedural vulnerability will significantly impact the confidentiality, integrity and/or availability of the system, or data. Exploitation of the vulnerability may cause moderate financial loss or public embarrassment to organization. |
| Low Risk | Exploitation of the technical or procedural vulnerability will cause minimal impact to operations. The confidentiality, integrity and availability of sensitive information are not at risk of compromise. Exploitation of the vulnerability may cause slight financial loss or public embarrassment |
| Informational | An “Informational” finding, is a risk that has been identified during this assessment which is reassigned to another Major Application (MA) or General Support System (GSS). As these already exist or are handled by a different department, the informational finding will simply be noted as it is not the responsibility of this group to create a Corrective Action Plan. |
| Observations | An observation risk will need to be “watched” as it may arise as a result of various changes raising it to a higher risk category. However, until and unless the change happens it remains a low risk. |

Table 2 - Ease of Fix Definitions

| Rating | Definition of Risk Rating |
| --- | --- |
| Easy | The corrective action(s) can be completed quickly with minimal resources, and without causing disruption to the system or data |
| Moderately Difficult | Remediation efforts will likely cause a noticeable service disruption   * A vendor patch or major configuration change may be required to close the vulnerability * An upgrade to a different version of the software may be required to address the impact severity * The system may require a reconfiguration to mitigate the threat exposure * Corrective action may require construction or significant alterations to the manner in which business is undertaken |
| Very Difficult | The high risk of substantial service disruption makes it impractical to complete the corrective action for mission critical systems without careful scheduling   * An obscure, hard-to-find vendor patch may be required to close the vulnerability * Significant, time-consuming configuration changes may be required to address the threat exposure or impact severity * Corrective action requires major construction or redesign of an entire business process |
| No Known Fix | No known solution to the problem currently exists. The Risk may require the Business Owner to:   * Discontinue use of the software or protocol * Isolate the information system within the enterprise, thereby eliminating reliance on the system   In some cases, the vulnerability is due to a design-level flaw that cannot be resolved through the application of vendor patches or the reconfiguration of the system. If the system is critical and must be used to support on-going business functions, no less than quarterly monitoring shall be conducted by the Business Owner, and reviewed by IS Management, to validate that security incidents have not occurred |

**3.1.2 Tests and Analyses**

This was completed using analysis of the project based on both the physical security issues and security issues within the project.

**3.1.3 Tools**

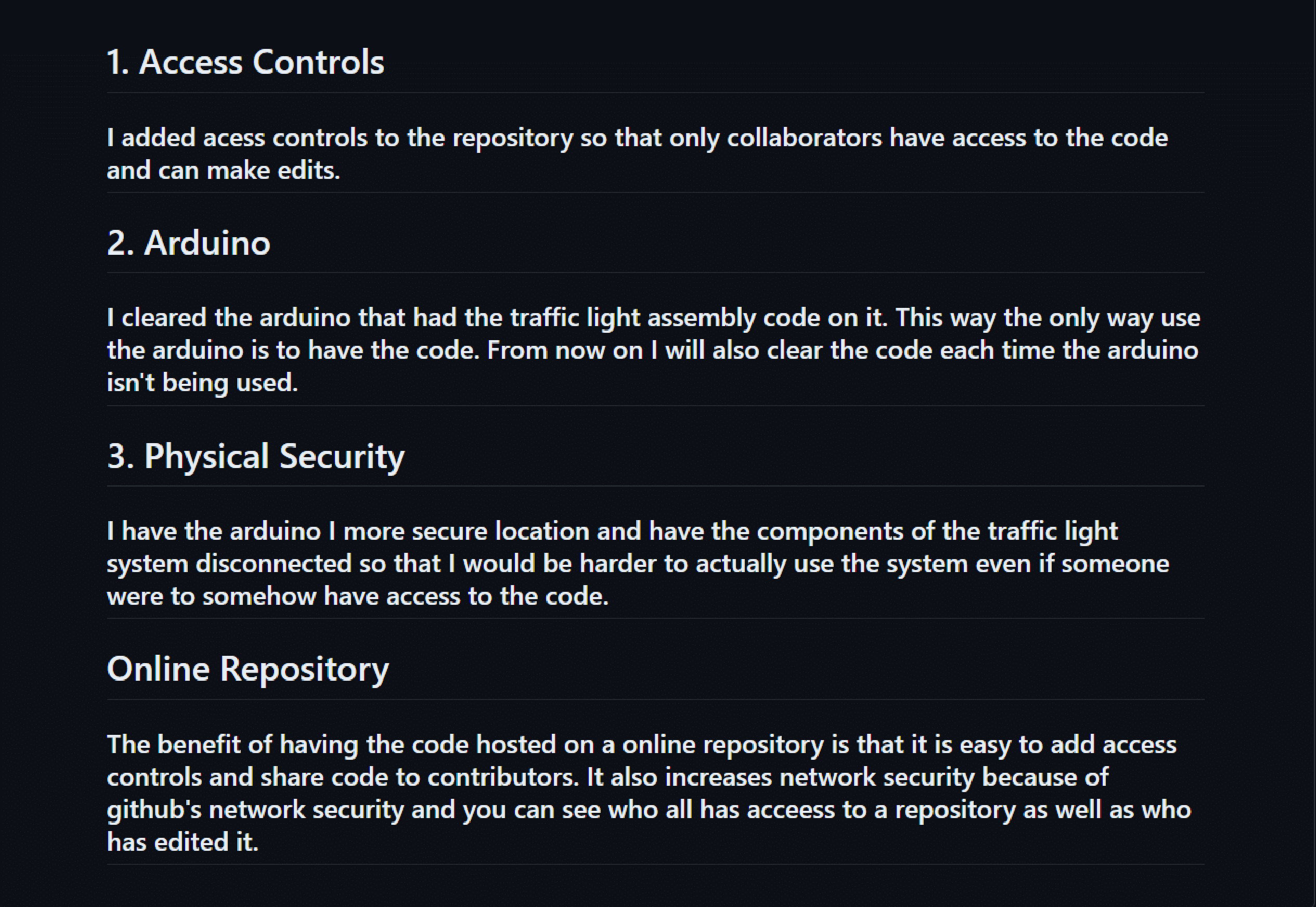
This was completed using MPLAB X debugging tool and looking through my resources to see how I could fix physical security issues as well as access controls.

# Figures and Code

Insert any pictures here (including of major code issues or code that was used as a tool – can just screenshot and add link to github). This section must include at least 4 figures or code portions:

### Process or Data flow of System (this one just describes the process for requesting), use-cases, security checklist, graphs, etc.

<https://github.com/zesutton2619/traffic_light_system>



The process was to fix the physical security issues first then go on to fix the other security issues that the project had like the access controls, Arduino issues, and online repository.

### Other figure of code

HERE

# Works Cited

<https://stackoverflow.com/questions/17323757/going-through-avr-assembler-hello-world-code>

<https://www.geeksforgeeks.org/data-transfer-instructions-in-avr-microcontroller/#>

AVR Branching Slideshow

<https://www.compassitc.com/blog/cyber-physical-security-why-you-need-both>

<https://www.sciencedirect.com/topics/computer-science/physical-vulnerability>

<https://tryhackme.com/room/passiverecon>