

1.1 REQUIREMENTS & CONSTRAINTS

List all requirements for your project. Separate your requirements by type, including functional requirements (specification), resource requirements, physical requirements, aesthetic requirements, user experiential requirements, economic/market requirements, environmental requirements, UI requirements, and any others relevant to your project. When a requirement is also a quantitative constraint, separate it into a list of constraints or annotate it at the end of the requirement as “(constraint).” Ensure your requirements are realistic, specific, reflective, in support of user needs, and comprehensive.

Functional Requirements:

- The Cysim Field needs to be an open space for each type of participant, such as red teams, blue teams, conference speakers, employees and spectators.
- The Backend Logic needs situational logic for different types of scenarios being played through along with logic to track the progress being made as well as the points being scored.
- The Scoreboard Design needs to display both teams scores to room and also display progress and other details about a simulation.

Resource Requirements:

- We are being provided a server, this will be used to create the Backend Logic for the CySim Field as well as create the UI for the CySim Field itself.

Physical Requirements:

- **Scoreboard**
- **Security Operations Center**
- **Kitchen**
- **Observation Space**
- **Press Room**
- **Board Room**
- **Conference Room**

Aesthetic Requirements:

- Making sure the layout matches the space that is provided within Research Park
- Scoreboard is located in a good spot where it can be seen properly from all angles by any person in the facility

User Experiential Requirements:

- Should provide simulated feedback to user actions and inputs that may take the form of simulated social media and news.
- Should allow technical and non-technical members to interact in the scenario, such as managing public relations or employee meetings for non-technical team members.
- Users should be able to tailor scenarios to their specific needs and allow for practice against scenarios that may occur more often in their sectors, such as hospitals and ransomware attacks.

Economic Requirements:

- We need Iowa State support
- possibly the State of Iowa
- Sponsorships

Environmental Requirements:

- CySim should allow users to increase their skills and preparedness for real-world threats.
- The facility can offer students real-world experience before and after they enter careers in cybersecurity.
- CySim can easily stay updated on emerging technologies and threats as the security field evolves.

1.2 ENGINEERING STANDARDS

What Engineering standards are likely to apply to your project? Some standards might be built into your requirements (Use 802.11 ac wifi standard) and many others might fall out of design. For each standard listed, also provide a brief justification.

IPV4

- We plan on using IPv4 for communications between systems we create to keep network design simplistic for blue team management and logging and for red team reconnaissance

NIST Cybersecurity Framework - Blue team

- The NIST CF goes over the five functions of blue teams
 - Identify, Protect, Detect, Respond, and Recover
- We will be designing the scoring and systems for the blue teams around these functions

MITRE ATT&CK Framework - Red Team

- ATT&CK framework goes over the many stages of a cyberattack that a red team will follow
- We will be using these stages for designing scoring and backend system for the red teams to use

OSI 7 Layer Model

- We plan on using the OSI 7 Layer Model in order to display and simplify security events for the sake of scoring and explanation to the players