



IE2052 - Advanced Networking Technologies Y2S2

Assignment 01

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1. Introduction.

Security vulnerabilities are common on campuses same as the other complex environments. When we understand those vulnerabilities we can solve them easily, mitigate them before they even happen. For this assignment we are going to talk about both main physical and logical security vulnerabilities in SLIIT campus and solutions for them.

2. Physical Vulnerabilities.

Vulnerability	Solutions	Evidences
<p>1. Poor security equipment management</p> <p>Id Scanner broken in the back gate.</p> <p>No Indicating options if the equipment's are being damage or not working properly.</p>	<p>Need some backup plans for the failure equipment temporary.</p> <p>Manage the existing equipment Regularly and place an Equipment Maintenance and Service Contract.</p> <p>Implement a Equipment retirement and replacement policies based of age of the equipment working state and maintenance cost. [1]</p> <p>Check the equipment and do regular inspections. This will help to keep the equipment up-to-date and working state. [2]</p>	<p>No images.</p>
<p>2. Perimeter security issues.</p> <p>As a private campus with thousands of students staff and others it should have more responsible perimeter access privileges. On a normal day this would not a big problem. But in an event, exhibition type of day the unauthorized personals, thief's can easily enter into the campus. This Can cause property damage, and stole some valuable item.</p>	<p>Fix places that can enter into the campus. Some walls are easy to climb (Isuru paya road side)</p> <p>Improve the existing Surveillance. Video analytics can enhance surveillance capabilities, and CCTV systems can act as a deterrent against potential intruders. [3]</p> <p>Place Emergency communication systems</p> <p>Improve the access control systems for the each faculty, each building.</p> <p>"We can go anyplace access anything if there is not a single barrier to stop us"</p>	<p>No Images.</p>

<p>3. Poor surveillance</p> <p>Even the campus has some decent amount of surveillance. We can spot some blind spots. With these vulnerabilities activities like property damage, stole properties can be happen.</p>	<p>Ask students and staff for knowledge blind spots.</p> <p>Upgrade and Expand the area of the CCTV coverage then the existing camera system will enhance and we can identify the possible threats and collect evidences in case of some incident.</p> <p>Implement an video analytics Software that can help to detect anomalies, including loitering, left behind objects and breaches. We can then identify incidents in real-time. [3]</p>	 <p><i>Figure 1 A switch box not closed in a lecture hall without a CCTV (A303)</i></p>
<p>4. Poor Safety precautions</p> <p>As we can see as students we have no emergency safety training and drills in case of some incident.</p> <p>No lightning and visibility problems at night in some areas of the campus</p>	<p>For the safety we can have Emergency response planes, these should have communication protocols, evacuation routes, roles and responsibilities. [4]</p> <p>Aware staff and students with safety drills and training sessions.</p> <p>Assign quick response security patrols and personal.</p> <p>Ensure visibility and lightning problems near carparks exits building outdoors and staircases.</p>	<p>No images.</p>



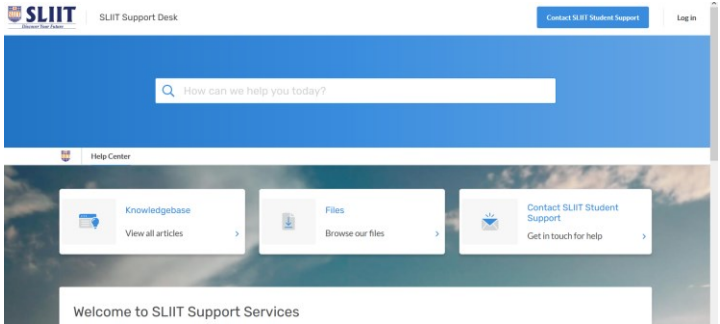
<p>5. Vehicle Parking Security issues.</p> <p>There are some issues that can be benefited for thieves in the parking including;</p> <p>Blind spots in surveillance car park area</p> <p>No surveillance for bike parking</p> <p>Not fully constructed vehicle park. Can be use for some unwanted activities at night.</p>	<p>Upgrade and expand surveillance system</p> <p>Ensure lightning and visibility</p> <p>Assign a emergency vehicle assistance to ensure quick response during the emergency times(near Angliss, engineering and main building)</p> <p>Put emergency call boxes for the necessary places.</p> <p>Implement an access control system for the parking areas with the RFID like Student IDs this ensures the authorized vehicle access to the campus perimeter. (sticker doesn't do the work)</p>	 <p><i>Figure 2 No surveillance for the helmet rack and Back gate security</i></p>  <p><i>Figure 3 No surveillance in bike parking at back parking.</i></p>
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Figure 4 No surveillance in bike parking.

3. Logical Vulnerabilities.

Vulnerability	Solution	Evidence
<p>1. Phishing attacks are common on the campus attempt to compromise usernames, passwords and other sensitive data unintentionally and intentionally.</p> <p>Some involves fraudulent emails, messages, evil twin WIFI attacks leading more damage for students [5].</p>	<p>Regular Security updates for the applications.</p> <p>Awareness programs, seminars on security breaches.</p> <p>Email filtering.</p> <p>Awareness Posters.</p>	<p>No images</p>
<p>2. Lack of Security Awareness on software and passwords.</p>	<p>Awareness programs can reduce this vulnerability</p>	<p>No images.</p>
<p>3. Access Points - WIFI</p>	<p>Increase and enhance Monitoring and auditing systems.</p> <p>Manage Authorization and authentication</p>	<p>No images.</p>
<p>4. Not having a quick response plans.</p>	<p>Enhance and establish a quick Reporting mechanisms. This can also solve the phishing attacks.</p> <p>Apply Incident response plans when needed.</p>	 <p><i>Figure 5 Supply.sliit.lk</i></p>
<p>5. Student system problems.</p> <p>When the Software systems being more fragile the whole system on the campus can be at risk. This can be more dangerous with the online payment portal.</p>	<p>Regular security patches and updates</p> <p>Notification systems</p>	<p>No images.</p>

4. References.

- [1] A. G. P. & R. F. Soro, "Design and implementation of a decision support system for equipment end-of-life management," *Journal of Cleaner Production*.
- [2] F. S. & A. C. H. (. Lopes, "A systematic approach for managing university campus facilities. *Procedia Computer Science*".
- [3] S. U. S. K. & A. F. Khan, "IEEE access - Smart campus security system based on IoT and big data analytics," 2019.
- [4] G. & W. B. Wrenn, "A practical guide to emergency planning and management in higher education. Routledge."
- [5] S. B. R. & S. Y. Rekik, "A phishing emails filtering architecture using a combinational approach".