Deliverable 4

IS 436 Structured System Analysis and Design
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Feasibility Analysis

Solution: The proposed solution is to have restricted network access, effectively only internet access with no other network access, for clientele. On the other hand, employees would have full network access with the use of biometric fingerprint scanners. Without biometric authentication, users on the company WIFI would be unable to access any information stored on the company network; decreasing the risk of a security breach. The hardware required would be two designated fingerprint scanners with one backup, and the software needed would be an application that checks the validity of said fingerprints. In order for the new system to be implemented, the company would need to outsource a professional firm that handles biometric installation. This new system will provide a method of complying with IRS security measures, the most pressing matter, while providing internet access to clients.

Economic Feasibility

- A one time cost for three biometric scanners, application software, initial training, and labor and installation would be estimated at $5,000, whereas recurring costs for the training of newly hired employees and system maintenance would estimate at $1,500 annually.
- Following this allows the firm to avoid security breaches that would potentially lead to upwards of 6 Million dollars in suits or fines in a worse case scenario
- The numeric estimates in this section are a little uncertain, but should at least not be underestimates, the estimates were made liberally with some research into related subjects (materials, lawsuits, etc.) because not much information was willingly divulged by the company contact in regards to cash flow and potential cash flow.

Technology Feasibility

- Biometric fingerprint scanner technology is required to implement this solution.
- General training starting with administration to use said biometric information is required, with the information likely needing a source from outside the firm.
- The network will need to be updated to be compatible with biometrics for authentication, the current network is compatible with regular character input passwords.
- Almost all parts of this solution will require outsourcing in regards to: fixing compatibility, providing access to the technology required, and providing information/training to use said technology.

Organizational Feasibility

- Time constraints provided by the IRS are not as tight due to the current pandemic, as such, there is not currently an issue in regards to urgency, however it is expected that the project should be implemented within a month of the pandemic subsiding.
- Taking steps to improve security will improve the company’s image and is generally approved by all stakeholders in the issue: The IRS, clients, and the company itself.
- This proposed solution will address both main issues of having an IRS compliant system and allowing clients to access the internet inhouse.
- Some employees might not be willing to give their biometric information such as their fingerprint, but since the IRS proposes a better security service for the company, the

biometric system will become mandatory, and if the client refuses, there is only one possibility of losing the employee. A consent should be taken prior, and if the consent is not taken from the employee, there is a possibility of the employee to file a privacy violation suit.

- One obstacle to the solution would be how fingerprint scanners introduce a new form of security risk, which is how easy it would be for someone to acquire an employees fingerprint. It is impossible for employees to go day-to-day without leaving traces of their fingerprint. So if someone's goal were to breach the network, acquiring a fingerprint would not be a difficult task.

Alternative solutions

Alternative 1:Create a Guest Wifi setup. Creating a separate heavily partitioned wifi access point would both provide good security and while remaining convenience to the clients. It will require some setup and implementation however

Alternative 2: hard wired access. Only allow access to the company internet through hard wired ethernet cables. That is to say remove the wifi entirely. Such a solution would be very easy to implement and remove the issue of wifi security entirely.However, it would likely greatly inconvenience both customers and employees as not all laptops have ethernet ports. Possibly rendering some customers and even a few employees unable to access the internet at the company office.

Alternatives matrix:

Criteria:

1. Customer Satisfaction: How content customers are with the local internet access, mostly in their ability to access it.
2. Cost: How expensive it would be to implement the alternative
3. Security: How effective the alternative is at securing the company wifi so that unauthorized breaches do not occur.
4. Tech Expertise: How difficult the alternative is to implement and manage.

Criteria	Weight	Proposed Solution	Score (1-5)	Weighted	Guest Wifi Alternative	Score (1-5)	Weighted	Manual access alternative	Score (1-5)	Weighted Score

				Score			Score			
Criterion 1: Customer satisfaction	30	Customers are provided wif-fi access as needed.	5	150	Customers are provided wif-fi access as needed.	5	150	Customers won't have access to wi-fi.	1	30
Criterion 2: Cost	20	There will be costs to setup the new network and acquire the biometric devices.	2	40	Some cost to implement and secure.	3	60	Low cost as ethernet cables are cheap.	4	80
Criterion 3: Security	40	Very good security will be provided due to the new system.	5	160	Uses standard wifi encryption, which are known to be hackable and vulnerable to an experienced attacker.	3	120	Ethernet Is more reliable than wifi, but there can be serious breaches should an infected device be connected to the network.	2	80
Criterion 4: Tech difficulty	10	There will be adjustment period for learning and setting up the new devices.	3	30	Similar setup requirements to the standard wifi but with a few wrinkles.	4	40	More difficult to work with all the cables. Configurations needs to be made on the networks to meet company needs	2.5	25
Totals:	**100**			**370**			**370**			**215**