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Project Initiation Document

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Project Management and Research Methods

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1. Objectives

1.1 SMART Objectives

It is important to use SMART objectives when planning as each point needs to be clear [1]. This will allow the objectives to be easier to follow, and to specify exactly what will need to be done so it is measurable. The objectives will need to be achievable as the technology costs are limited. Using SMART will improve the relevance as it will keep in line with the purpose of the project. There is also a time limitation.

1.2 Project Objectives

- To develop a fingerprint recognition system for students to sign into lectures. This will be measured by the system being able to process the user's fingerprint, identifying the student and marking them present.
- Create a web interface that can show all the attendance for the specific lecture. This can be measured as the web interface will recognise the unique lecture and attendees and present it on the web interface.
- Update a database to mark the student present. This point can be tested by looking at the database and seeing that the attendance status and timestamp is posted into the database successfully.
- Allow the lecturer to append student data and time of entry. e.g. if the student failed to use the fingerprint reader.
- Get students to thumb in at the beginning of the lecture and then thumb out at the end of the lecture. As this will keep the student in the classroom for the full time and the lecture and not leave early.
- To recognise late students.

2. Scope

A boundary for the project is the security of the sensitive data that is being stored. This leaves vulnerabilities if the database is leaked or obtained by an unauthorised user. To ensure that this boundary is minimised there will need to be encryption in place when transferring any personal data so it cannot be seen on the network.

The data that will be collected by the system is the fingerprint of the student and the timestamp. The system will not gather any other information through the fingerprint scanner.

2.1 Aspects Included in the Project

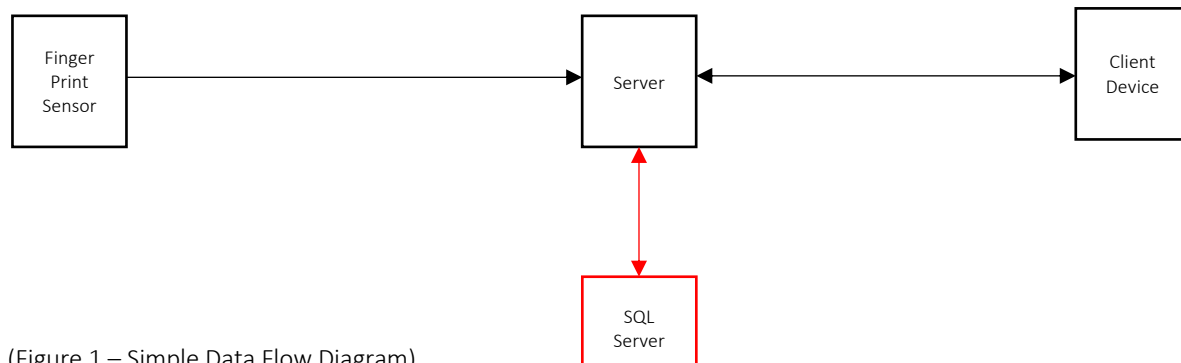
Hardware such as the fingerprint reader, web app, web hosting, SQL server, implementing the university house style.

2.2 Aspects Excluded from the Project

Loading the student thumb prints in to the system, hosting server, student data, training to use the system.

3. Constraints

A problem could be connecting the fingerprint sensor to the database over the local area network (LAN). One solution is to use a wired connection from the fingerprint sensor to an Arduino, then passing the data to the database. Alternatively, connecting the fingerprint sensor directly to the server on a Raspberry Pi through a wired connection.



(Figure 1 – Simple Data Flow Diagram)

A problem that could arise is from the lecturer manually appending the student's data. Posting the data from the web app must use PHP and JAVASCRIPT to make the system cross-platform [2]. As there are no experienced developers in the team, this could be a challenge.

Another constraint for this project is time [3]. This is a sizeable project so the team could run out of time when developing the web app. The use of Microsoft Project Planner may help this constraint.

When the fire alarm sounds there will need to be a way of cross checking that all the students from the lecturer are out of the building. Therefore, the lecture will need a list of the attending students to perform a register count.

4. Authority

As the users are students, there will be an opportunity to test the system using the target market during development, so there can be constant input.

Lectures are also the real future clients. This will give us an opportunity that allows development with direct input from the real-life users. This will make sure there is no bias. There was a questionnaire given out to the staff so that the product can relate closest to the users.

5. Resources

The people on this project will be the team member of the group. They will be the people contributing to making the project become a reality. The equipment used in the project can be split in to hardware and software. The software used are different Integrated Development Environment's (IDEs) [4] using different code languages and a web server along side a SQL server. The hardware that will be used is, a raspberry pi, fingerprint reader and an Arduino. All these products will be purchased by all the team members.

6. Stakeholders

These are the included stakeholders for the project.

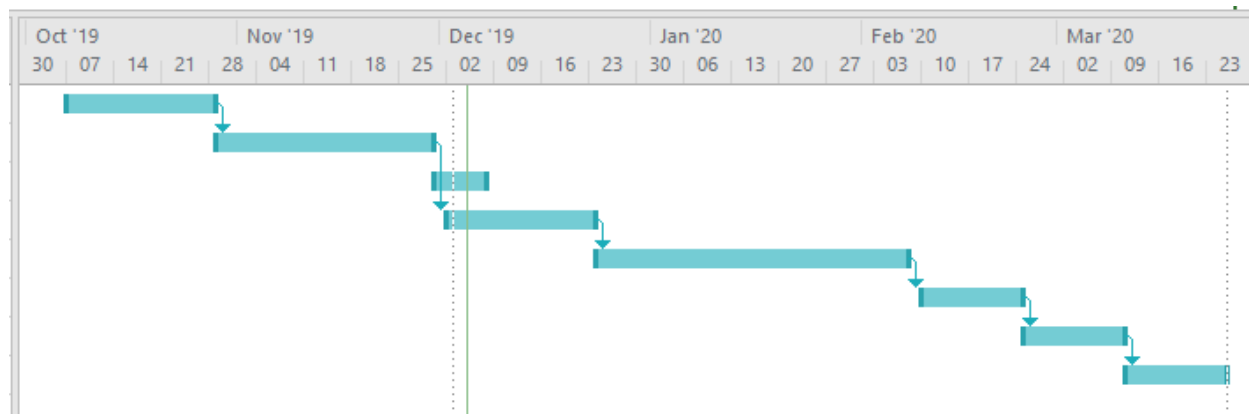
Internal	External
- University - Students - Lecturers - IT Technician - Design Team	- Hardware Suppliers - Software Suppliers

7. Project Plan

7.1 Gantt Chart Table

Task Mode ▾	Task Name ▾	Duration ▾	Start ▾	Finish ▾	Predecessors ▾
★	Research	16 days	Mon 07/10/19	Mon 28/10/19	
★	Project Plan	24 days	Tue 29/10/19	Fri 29/11/19	1
★	Equipment	7 days	Sat 30/11/19	Sat 07/12/19	
★	Design	16 days	Mon 02/12/19	Mon 23/12/19	2
★	Develop	34 days	Tue 24/12/19	Fri 07/02/20	4
★	Testing	11 days	Mon 10/02/20	Mon 24/02/20	5
★	Implementation	11 days	Tue 25/02/20	Tue 10/03/20	6
★	Finalise	11 days	Wed 11/03/20	Wed 25/03/20	7

7.2 Gantt Chart



8. References

- [1] Bjerke, May Britt and Renger, Ralph, "Being smart about writing SMART objectives," 2017.
- [2] W3Schools, "PHP MySQL Database." [Online]. Available: https://www.w3schools.com/php/php_mysql_intro.asp. [Accessed: 05-Dec-2019].
- [3] L. Tran, "The Importance of Time Management (Aspects of Project Management Part 1)," 2015. [Online]. Available: <https://www.inloox.com/company/blog/articles/the-importance-of-time-management-aspects-of-project-management-part-1/>. [Accessed: 05-Dec-2019].
- [4] M. Rouse, "Integrated Development Environment (IDE)," 2018.