



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SCHOOL OF COMPUTING
Faculty of Engineering

SECJ2203: SOFTWARE ENGINEERING

PROPOSAL FOR STAFF ATTENDANCE SYSTEM

Team Name: Group 9

Team Members:

1. Nursyahidatul Asyiqin binti Yusof - Leader (A19EC0140)
2. Nurul Syamira binti Amat Jifri (A19EC0145)
3. PG. Khairil Qayyiz bin PG. Putra (A19EC0147)
4. Qudri Ameer bin Mohd Safiee (A19EC0150)

Stakeholder(s):

1. En. Yusof bin Kassim from SMK Sultanah Hajjah Kalsom

1. Introduction

Attendance is an action or state of going regularly to or being present at a place or event. If someone is attending a place or an event, they are there. (COBUILD Advanced English Dictionary, 2021) [1] In other words, the attendance system is a system that is used to track and monitor when employees start and stop work. Attendance Management can be done by recording employee hours on paper, using spreadsheets, punching time cards, or using online attendance software. (PeopleHum, 2020) [2]

The staff attendance system is much needed. This system involved the **target user** from all the staff from SMK Sultanah Hajjah Kalsom such as teacher, supervisor, and principal. Based on the claim made by our stakeholder who is a principle of SMK Sultanah Hajjah Kalsom, Mr. Yusof state that the staff attendance system is the most important system out of all because he can monitor and track his staff attendance and take an action towards who is not fulfill the minimum requirement for getting a good attendance. There is a **need** for the principal to replace the old system with a new one in order to make his job become faster since the old system is not fully computerized (TCMS V3). There is some part of the system that he needs to do it manually. For the other staff such as teachers and supervisors, it would be better if they could know their status of attendance. Humans cannot remember the exact date and time especially if it includes a lot of data. Therefore the staff can take care of their own attendance and not wait at the end of the month just to know their cumulative attendance. Hence, the staff attendance system not only eases the principal job but can help other staff in maintaining and following up with their attendance performance.

The **proposed approach** to the staff attendance system will be a laptop, computer, monitor, etc based application. A new system will be implemented in a way that those working at the school can access the system by login into the website using their IC no. Several **key features** will be implemented in our system. Firstly, the main proposed is to make sure that this system changes to a fully computerized system. It would be better not only to speed up the principal job to calculate and monitor the staff but reduce the use of paper. In order to make sure that no older data is missing during system replacement, the data from the same database would

be linked to the new system. The next feature would be focusing on organizing the documents. There would be a section for staff to submit their excuse for leave of absence to support the deficiency towards their attendance. The system then will notify the staff whether the letter has been accepted or not. Besides, to make the system look more organized, there is a section for departments, which means if the principal wants to look for example department staff, all the staff details will appear. This system will compile similar data in one place. Lastly, the system offers a simple and minimal feature so it will be easy to learn and used by all the staff. We understand that a sudden change could bring a problem and take a lot of time for the staff to adapt to the new system. Therefore, the system will provide features such as the display preference and setup wizard, in order for users to understand and use the system in a convenient way.

The **benefits** of this system to the user would be greater than the existing system. Firstly, the system could save a lot of time and ease the principal job such as when monitoring the staff performance. Next, in considering how important it is to practice contactless especially during the pandemic, the system uses this as one of the important regulations during the implementation. Therefore, using electronic media to pass information rather than on paper is one of the good inventions to reduce contact.

The current similar **existing system** available at the moment is the one that has been used by this school which is TCMS V3. TCMS V3 is a powerful time and attendance designed based on FingerTec's years of experience in the industry. (Timetac Computing, 2021) [3]. Some features of the TCMS V3 system are it has real-time monitoring of staff's time attendance records, clocking schedules, customized digital watermark, and using fingerprint login. **The difference** with our proposed system when compared to TCMS V3 is this system does not provide a page for staff to see their monthly report as our proposed system does. Hence, instead of printing out the reports into any format (PDF, HTML, XLDV, etc), calculate and summarize the report manual the staff could use the features provided and print only what is needed. Besides, our proposed system does not have a watermark.

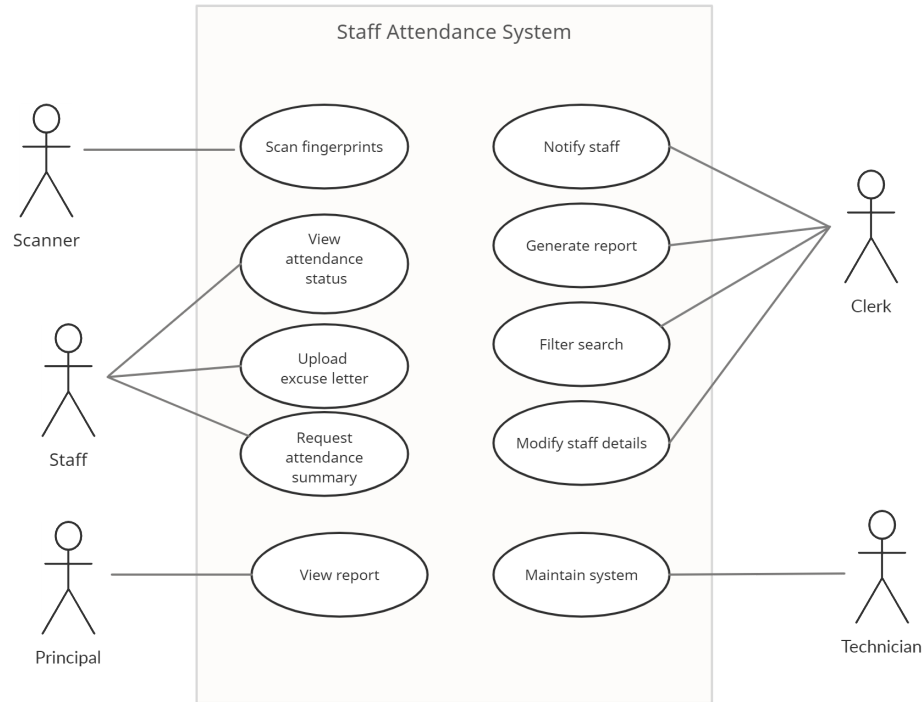
2. Existing Systems

The current system which is used in this study is the thumbprint attendance system, where firstly, the staff will go to the office to scan their thumb on a thumbprint scanner device and it will indicate whether the staff's attendance has been taken for the current day. From the thumbprint scanner device, the data will be stored in a system where the data stored consist of the staff's name, staff identification number, time check-in, time check-out, and the date. The system will only store the daily attendance of the staff and does not provide any summary report at the end of the month for the administrator to monitor the attendance. The administrator will have to monitor and check the staff's attendance manually where for each staff, the administrator will have to check their attendance for each of the days and mark the day they were absent or present to calculate the total attendance for the whole month. It is very hard for the administrator to manually calculate the staff's attendance every month. So, having a feature to summarise the attendance at the end of the month will make the system more efficient and effective.



Figure 1: The thumbprint scanner device used in this study

3. Proposed System



Use case diagram for our Staff Attendance System

The name of the proposed system is Staff Attendance System. This system will be fully computerized, upgraded attendance system with better tracking and provide the finalized report of the staff's attendance at SMK Sultanah Hajjah Kalsom. the principal will have the access to monitor the report of the attendance.

First of all, the scanner will identify the staff's information. The staff's clocking in and out time is recorded in the system.

Next, there will be features for the staff to use which view their attendance status, uploading their excuse letter for leave of absence, and requesting the attendance summary. All these features ease the staff to keep track of their attendance.

Other than that, the staff attendance status will be displayed cumulatively in the report. The report that will be generated by the clerk can be retrieved within a specified period such as daily, weekly, and monthly. Hence, the principal can easily monitor the staff's performance based on their cumulative recorded attendance information.

Furthermore, the clerk in charge can notify the staff of their attendance warning multiple times of late or absent. The staff will be notified through their email. Also, the clerk can perform a filter search function to access the attendance report. This feature could narrow the findings on the report such as searching the teachers from their department, the status of absent for the month, searching by the staff's identification number, and more options. Last but not least, the clerk can modify the details of the staff.

4. Functional requirements

4.1 Scan fingerprints

The scanner shall be able to identify the staff's information and record the clocking in and out date and time for the attendance.

4.2 View attendance status

The staff such as teachers and supervisors shall be able to view the status of their attendance after they have clocked in.

4.3 Upload excuse letter

The staff shall be able to upload their excuse letter for leave of absence for the principal's reference.

4.4 Request attendance summary

The staff shall be able to request an attendance summary and it will be sent to their email.

4.5 View report

The principal shall be able to view the cumulative attendance report to monitor the staff's performance.

4.6 Notify staff

The clerk shall be able to notify staff with their attendance warning regarding multiple times of late or absence.

4.7 Generate report

The clerk shall be able to generate a report of the staff's attendance by a specified period.

4.8 Filter search

The clerk shall be able to enable the filter search feature that has been made by the user when accessing the report. The filter should be in categories and the search can be input from the user.

4.9 Modify staff details

The clerk shall be able to modify details of staff that need to be updated when requested by them on the system.

4.10 Maintain system

The technician shall be able to maintain the system by making sure the system is always up-to-date and perform maintenance if there is a bug.

5. Non-Functional Requirements

5.1 Performance

- The system should be able to scan and register the user fingerprint within 2 seconds.
- The system should be able to load any task within 5 seconds.

5.2 Accuracy

The system should be able to give an accurate time when scanning for attendance.

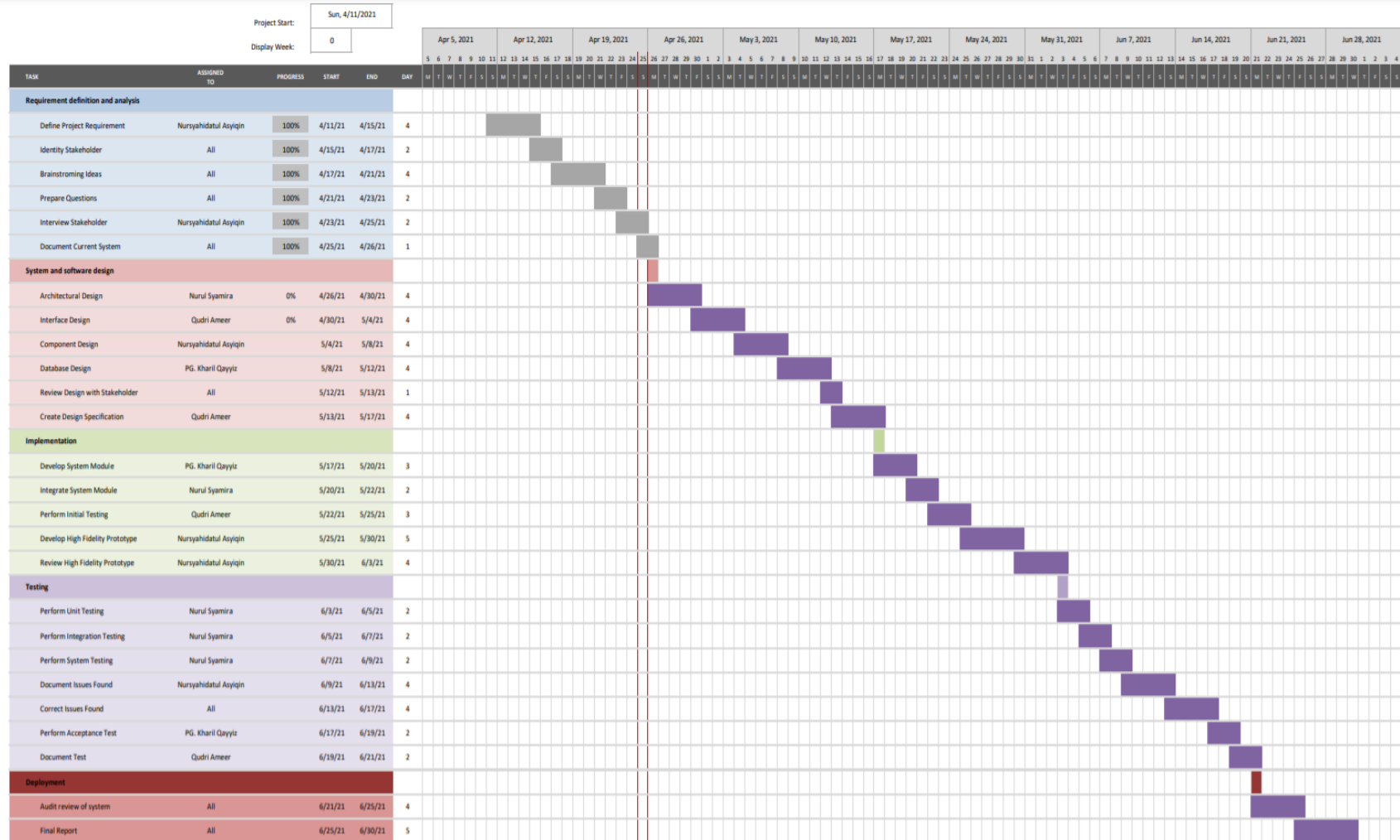
The system should be able to provide accurate and organized data of attendance records.

5.3 Security

The system should restrict access for each level of management.

The system should scan attendance for registered users only.

6. Schedule



7. References

[1] HarperCollins Publishers Ltd. (n.d.). *Attendance definition and meaning: Collins English Dictionary*. Attendance definition and meaning | Collins English Dictionary. [online] viewed 14 March 2021. Retrieved by <https://www.collinsdictionary.com/dictionary/english/attendance>.

[2] *Glossary - Attendance Management*. People hum. (n.d.). [online] viewed 13 March 2021 Retrieved by <https://www.peoplehum.com/glossary/attendance-management>.

[3] *Fingerprint: Card Access Control And Time Attendance Solutions: FingerTec Worldwide*. Fingerprint | Card Access Control And Time Attendance Solutions: FingerTec Worldwide. (n.d.). [online] viewed 14 March 2021. Retrieved from <https://www.fingertec.com/softwareupdate/TCMSV3/>