SOFTWARE DEVELOPMENT PROPOSAL

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# Project Definition

The purpose of this project is to develop a web application for the Fitness Center located in the Human Kinetics Program (HKP) building, with the primary goal of eliminating the traditional pen-and-paper method for logging user activity. This application will provide a seamless, mobile-based solution that allows users to conveniently log in and out of the center using their personal devices. By transitioning to a digital system, the Fitness Center aims to improve efficiency, reduce manual errors, and enhance the overall user experience.

The system is designed to be cost-effective and user-friendly, requiring no additional hardware investments such as computer units or specialized equipment. The application will operate entirely through users' mobile devices, removing the need for complex system setups or installations. This approach minimizes operational costs and simplifies the process for both users and administrators.

The web application will include functionality for users to securely log their access to the Fitness Center, while administrators will have the ability to view and analyze records for their documentation purposes.

# Business Need

The client requires a more efficient and structured system for tracking student usage of their gym facilities. At present, they rely on a manual logbook, which poses several vulnerabilities and limitations including but not limited to storage, accessibility, and functionality. Implementing a digitized system will not only streamline the process of record-keeping but also address its limitations through the following remedies:

1. Storage: Paper records can quickly accumulate, occupying physical space and requiring careful management and maintenance, as they are susceptible to physical deterioration. Meanwhile, a web-based platform can update data to the cloud, preserving valuable data while eliminating the need for physical storage.
2. Accessibility: Retrieving specific data from manual logbooks can be inefficient and time-consuming, especially for older records. An electronic logbook provides immediate access to records for a specific date.
3. Functionality: A software solution allows the addition of more extensive functionalities than that of a manual logbook. This project specifically will enable the client to monitor treadmill usage, allowing for a thorough evaluation of university resource utilization and energy consumption.

With these utilities, the project deliverables will significantly improve the operations of the Fitness Center, providing a streamlined and convenient solution for tracking their facilities.

* 1. Customer Profile and Existing System

Under the management of the HKP of the University of the Philippines – Baguio (UPB), the Fitness Center caters to the university population, employees and students alike. In order to review operations of the facility and identify areas for improvement, the HKP tracks its users through a paper logbook. In this current system, gym-goers write down their names together with their time-in before entry and their time-out after use. It is noted that the Fitness Center also tracks treadmill usage through the same procedure. These records serve as a usage tally and a reference for the administrator’s reports.

With the creation of a digitized system, it will be possible to streamline these user logging procedures. This system will be developed primarily to facilitate user tracking and to assist the Fitness Center administrator or coordinator in managing the facility. This will also refine the user experience by making log-ins and log-outs more convenient, enabling quick check-ins through QR code scanning. While users such as students and faculty will use this application regularly, the administrator may only access the system periodically to monitor current Fitness Center statistics. As a result, the project will be developed with the UPB community in mind, particularly regular users and those who are interested in using the facility.

* 1. Critical Constraints

As a course requirement, the implementation timeline of the project is limited to the period from the approval of this proposal until the end of the second semester of S.Y. 2024-2025. Moreover, the course mandates that only one prototype may be developed by the team. The features proposed to the HKP must be successfully delivered, though additional features may be incorporated as long as the final project remains aligned with the client's primary objectives.

Additionally, since the client is not in the position to provide any resources, the team will be responsible for sourcing all necessary materials and covering all related expenses. An internet-based solution also requires server access, and connecting to the university’s server is up to the discretion of the Digital Innovation Center (DIC). Given these constraints, it is up to the team to strategize and develop a cost-effective solution that meets the project's objectives while ensuring optimal outcomes for both parties.

Lastly, it is the team’s objective to design a solution that is suited for long-term use. However, bugs and performance issues may still emerge over time and may require upgrades and optimizations to maintain functionality and efficiency.

* 1. Project Deliverables

[Create a preliminary list of all items to be delivered to the customer, including

hardware, software, training, documentation, and post-installation support.]

1. **Hardware Deliverables**

* QR code posters
* User Manual
* Admin Guide
* System Architecture Overview

1. **Software Deliverables**

* QR-based user log-in/log-out functionality
* Real time tracking of user entry, exit and treadmill usage
* Email notification for users who forgot to log-out
* Admin dashboard for monitoring users’ activity and records
* Local and cloud-based data storage for records
* Manual editing feature for admin
* View and retrieval of historical data feature for admin

1. **Training**

* **User and Admin training session**. An orientation will be conducted for the students and staff that will be using the web application.

1. **Post-installation Support**

* Maintenance and bug fixes
* User support and troubleshooting assistance
* Performance monitoring

1. **Preliminary Requirements**

[Summarize the customer’s preliminary requirements.]

* 1. Functional Requirements

[Create a list of the functions, features, and capabilities. Include external

interface requirements and capacities; read, update, share/modify, etc., and

data conversion requirements.]

General Features (for both user and admin)

* User authentication. Users and admins must be able to create and log in to their accounts.

Admin Features

* Manual editing. This will allow the admin to manually update logs in the system in the case of power outages or when the need arises.
* View History. This will allow the admin to view the history of records. Here, they can filter the logs based on dates.

User Features

* QR scanning. This is how users will be able to log in and log out.

External Interface

* DBMS:
* For QR scanning: anything with a functional camera and CAN READ QR codes
* API: If applicable, what APIs will be used?
* Email notifications. As protocol, any active records that remain logged by designated break times or closing hours will be automatically logged out by the system. When this occurs, users will receive an email notification informing them that they failed to log out and that the system has logged them out automatically.
  1. User Interface

The app will be accessible on both desktop and mobile devices, making a responsive UI design essential. To achieve this, SvelteKit will be used to develop the user interface, ensuring smooth performance and adaptability across different screen sizes. Additionally, the interface will be customized based on the user’s role, allowing each user to access only the functionalities relevant to their responsibilities. This role-based design will enhance usability and improve the overall user experience.

* 1. Target Environment

NOTE: The following bullet points must be merged into a PARAGRAPH

* The web-app is intended to operate on the local server of the university.
* Database Engine: ?
* Platform: web-app
* Web Server: ?
* Availability: Does it need to run 24/7?
* Interoperability:
* What type of files can be exported?
* Can operate on the local Wi-Fi network provided by the university
* Target Device: Mobile phone/tablet/laptop ?

[Describe the target hardware environment, including any resource constraints

and performance requirements (e.g., user capacity, response time, platform,

network, database engine, interoperability).

Are there any availability requirements (e.g., 7x24)?

Are there specific performance requirements?]

* 1. Summary of Customer Priorities and Expectations

The primary goal of this project is to enhance the efficiency of the UPB Fitness Center by replacing the traditional manual logbook with a QR-based digital system. The client's main priorities and expectations are the following:

1. Log-in/Log-out Feature
   1. Users should be able to scan a QR code upon entry and exit, ensuring accurate and effortless activity tracking inside the fitness center
   2. The system must automatically log out users who forget to do so and notify them via email.
2. Tracking of Treadmill Usage
   1. The system should record treadmill usage data, allowing administrators to monitor usage trends and resource allocation effectively.
3. Admin Features for Monitoring
   1. The admin should be able to access a dashboard to view, retrieve and analyze attendance records
   2. The system should allow manual log adjustments in case of power outage
4. Accessibility
   1. The web-based system must be user-friendly and accessible on mobile devices, tablets, and desktops without additional hardware.
   2. Data should be securely stored and retrievable for reporting purposes.
5. **Approvals**

[Identify key project and customer approvers of the Project Proposal.]

1. Project Adviser
2. HKP Coordinator
3. Administrator
4. DIC Head

Approvals

|  |  |
| --- | --- |
| Signed as accepted by client: |  |
| [NAME], [TITLE] | [DATE] |

# 8. Milestones and Reporting

### Total estimation of man hours: 226

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Milestone** | **Tasks** | **Reporting** | **Hrs** | **Date** |
| **1 - Analysis** | | | | |
| 1.1 | Analysis and design stage, gather data and create system mockup | None | 20 | 20/01/15 |
| 1.2 | Architecture design | None | 4 | 01/02/15 |
| 1.3 | Design work plan (distribution of tasks to development teams) | Client meeting to review work plan | 10 | 07/02/15 |
| **2 - Development** | | | | |
| 2.1 | Create database | None | 5 | 14/02/15 |
| 2.2 | Import existing client data | None | 5 | 21/02/15 |
| 2.3 | Clean data | None | 5 | 28/02/15 |
| 2.4 | Create GUI | Client meeting to review GUI | 30 | 01/04/15 |
| 2.5 | Integration with PaperlessOffice.net | None | 10 | 14/04/15 |
| 2.6 | Integration with smartphone network | Email report | 10 | 21/04/15 |
| **3 - Testing** | | | | |
| 3.1 | Alpha testing desktop application (Closed) | Email report | 25 | 07/05/15 |
| 3.2 | Alpha testing smartphone application (Closed) | None | 25 | 14/05/15 |
| 3.3 | Open Beta (volunteer employees) | Client meeting | 22 | 21/05/15 |
| 3.4 | Finalise documentation | None | 20 | 28/05/15 |
| **4 - Deployment** | | | | |
| 4.1 | Deployment to desktops | None | 5 | 01/06/15 |
| 4.2 | Deployment to smartphones | None | 10 | 07/06/15 |
| **5 - Training** | | | | |
| 5.1 | Inhouse training | Client meeting | 16 | 14/06/15 |
| 5.2 | AdHoc training | None | 4 | 30/06/15 |