Project Proposal: CAPACITI Digital Sign-In System

Prepared for: CAPACITI Leadership

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Duration: 3 Weeks

Introduction

This proposal outlines a plan to implement a Digital Sign-In System at CAPACITI to replace the current manual attendance process. The system aims to reduce congestion at reception areas, improve data accuracy, support real-time participant tracking, and promote accountability. Key outcomes include enhanced operational efficiency, improved mentor oversight, and streamlined data management.

Problem Statement

Manual sign-in sheets are time-consuming, prone to error, and difficult to analyze. They also rely heavily on human memory and physical materials — participants often forget to sign in at the reception, and issues like missing pens or damaged sheets can disrupt the process. This leads to incomplete records and inconsistent data. There is a need for an efficient, user-friendly digital system to record and monitor attendance accurately and reliably.

Time-Consuming Process

Manual sign-in creates bottlenecks at reception areas

Error-Prone Records

Handwritten entries lead to illegible or incomplete data

Difficult Analysis

Paper records require manual data entry for reporting

Reliance on Memory

Participants frequently forget to sign in upon arrival

Project Objective

To design and implement a digital sign-in system that simplifies attendance tracking, provides analytics, and enhances user experience.

Eliminate Manual Processes

Replace paper-based sign-in sheets with digital alternatives

Automate Check-ins

Timestamp participant arrivals for accurate record-keeping

Provide Real-time Data

Give mentors immediate access to attendance information

Reduce Congestion

Streamline participant entry with efficient digital processes

Enable Data-driven Decisions

Improve analytics capabilities for better insights

Technical Overview

A system architecture diagram illustrates the data flow between components. If possible, we also wish to extend the system into a mobile app for easier access and convenience, especially for on-the-go check-ins.

This section outlines the planned technical structure for the Digital Sign-In System, including platform choice, key technologies, data flow, and hardware requirements.

Platform Choice

- Web-based application, accessible through smartphones or PCs placed at entry points
- Mobile-responsive interface for ease of use

Technologies

Component	Technology
Front-End	React.js
Backend Services	Firebase (Firestore, Auth, Hosting)
Styling	CSS or Bootstrap CSS
Version Control	Git + GitHub

System Components

1. User Interface – Digital sign-in screen with fields for name, time, and program info.
2. Admin Dashboard – Used by mentors/staff to track attendance and generate reports.
3. Database – Stores participant records and timestamps securely.
4. Authentication Module – Optional login system for staff access to dashboard.
5. Analytics – Simple data visualization for attendance trends.

Hardware Requirements

- Entry Devices: smartphones or PC with internet connection (e.g., Android tablet or Windows desktop).
- Optional: Printer for backup reports or QR sign-in codes.

Data Flow Summary

1. Participant enters information on the tablet interface.
2. Data is sent to the server and stored in the cloud database.
3. Admin dashboard pulls data from the database and displays it in real-time.

Project Timeline and Team

Week 1: Planning & UI Design

Gathering system requirements, interface design, and infrastructure planning

Week 2: Development & Testing

Rapid development, internal testing, and pilot configuration

Week 3: Deployment & Presentation

Full deployment, staff training, and initial feedback collection

Team Roles

Roles will be assigned based on each member's strengths and preferences after proposal approval:

Project Coordinator

Oversees progress and coordination

Technical Lead

System architecture and integration

Lead Developer

Core development of features

UI/UX Designer

Interface design and user flow

Data & Testing Lead

Handles testing and data validation

Documentation Lead

Manages reports and final presentation

System Features & User Interface Design

Candidate Dashboard (User Portal)

The Candidate Dashboard is designed for ease of use across both mobile and desktop platforms. It allows candidates to quickly confirm their attendance and view relevant updates.

Layout Overview:

Header (Top Bar):

- CAPACITI logo (top-left)
- Welcome message: "Welcome, [Candidate Name]"
- Real-time Date & Time display
- Sign Out" button (top-right)

Main Content Sections:

1. Attendance Status Card
    - Dynamic status indicator:
        - 🟢 Signed In: "You signed in at [time]"
        - 🔴 Not Signed In: "You have not signed in yet"
        - 🕑 Time Left: "Sign-in closes at 9:00 AM"
    - Button disables after successful sign-in; replaced with ✅ checkmark.
2. Sign In Button
    - Prominent [Sign In Now] button
    - On click: timestamp is recorded and sent to Firebase
    - Button becomes inactive once sign-in is complete
3. Attendance History (Optional)
    - A table listing the most recent 5 sign-in entries
4. Notifications / Alerts
    - Banner for important messages

Admin Dashboard

The Admin Dashboard provides real-time oversight, data analysis, and system control tools for project administrators.

Layout Overview:

- Header bar with logo, page title, admin info, and timestamp

Core Components:

Attendance Summary Cards

- At-a-glance stats:
    - ✅ Signed In Today: 84/100
    - ❌ Absent Today: 16
    - 🕑 Late Sign-ins: 9
    - 📁 Total Candidates: 100

Filters and Controls:

- Filter by cohort, location, or date
- Search by name, ID, or email
- Export options: CSV / PDF
- 🔄 Refresh for live updates

Live Attendance Table

- Real-time sign-in status view
- Status colors:
    - ✅ Green = Present
    - ❌ Red = Absent
    - 🟡 Yellow = Late
- Expandable rows for full candidate profiles

Visual Attendance Chart (Optional):

- Bar/line charts with tabs for daily/weekly/monthly insights

Notifications/Alerts Panel:

- System alerts for admins and broadcast messages to users

Security, Evaluation & Risk Analysis

Security and Privacy

Data will be securely stored using Firebase with encryption and access control. Admin features will be protected by authentication. The system will follow basic privacy compliance practices such as POPIA or GDPR principles where applicable.

- Firebase Authentication for admin access
- Data encryption (handled by Firebase)
- Role-based access (only mentors/staff can view data)
- Compliance with GDPR/POPIA principles
- Daily/weekly backup strategy

Monitoring and Evaluation (KPIs)

15s

Target Sign-in Time

Average sign-in time under 15 seconds

95%

Accuracy Rate

Attendance accuracy target

99%

System Uptime

Availability target

Additional KPIs include daily sign-in percentage and mentor/staff feedback on usability.

Risk Analysis and Mitigation

Risk	Mitigation Strategy
Technical issues	Use tested libraries and backup plan
User resistance	Provide training and collect feedback
Data loss	Regular automated backups via Firebase
Device issues	Ensure compatibility across devices