Digital Chef Sync

Final Year Project Report

Submitted by

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Supervisor

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In partial fulfillment of the requirements for the degree of
Bachelor of Science in Computer Science
2021-2025

Faculty of Engineering Sciences and Technology

Hamdard Institute of Engineering and Technology

Hamdard University, Main Campus, Karachi, Pakistan

Certificate of Approval

Faculty of Engineering Sciences and Technology

Hamdard Institute of Engineering and Technology
Hamdard University, Karachi, Pakistan

This project "**Digital Chef Sync**" is presented by **Anas Sabih Sarwar (2600-2021) , Abu Bakar (2167-2021) , Hamza Rafique (2195-2021)** under the supervision of their project advisor and approved by the project examination committee, and acknowledged by the Hamdard Institute of Engineering and Technology, in the fulfillment of the requirements for the Bachelor degree of Compute Science.

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(Department of Computing)

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Authors' Declaration

We declare that this project report was carried out in accordance with the rules and regulations of Hamdard University. The work is original except where indicated by special references in the text and no part of the report has been submitted for any other degree. The report has not been presented to any other University for examination.

Dated:

Authors Signatures:

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Plagiarism Undertaking

We, **Anas Sabih Sarwar**, **Abu Bakar,** and **Hamza Rafique**, solemnly declare that the work presented in the Final Year Project Report titled **Digital Chef Sync** has been carried out solely by ourselves with no significant help from any other person except few of those which are duly acknowledged. We confirm that no portion of our report has been plagiarized and any material used in the report from other sources is properly referenced.

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Authors Signatures:

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Anas Sabih Sarwar

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Abu Bakar

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Hamza Rafique

Acknowledgments

All praises to Almighty" ALLAH", Who is the most generous, the most kind, and the wellspring of all human knowledge and wisdom. With all due respect, the Holy Prophet "Hazrat MUHAMMAD صلی اللہ علیہ وسلم" will always be a source of wisdom for people.

Acknowledgement due to Hamdard Institute of Engineering and Technology for their assistance with this project, which is a very valued accomplishment for us as undergraduates.

We owe it to Sir Iqbal Uddin Khan, our supervisor, who has served as our major advisor. We would like to thank them for their insightful advice, genuine assistance, and friendly appearance, all of which inspired us to complete the project successfully and make it a reality.

Several people have offered insightful comments and ideas on this proposal, particularly our classmates and team members themselves, which motivated us to make our project better. We
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Document Information

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Definition of Terms, Acronyms, and Abbreviations

This section should provide the definitions of all terms, acronyms, and abbreviations required to interpret the terms used in the document properly.

Table 2: Definition of Terms, Acronyms, and Abbreviations

TERM	DESCRIPTION
Scrum	An agile project management methodology emphasizing iterative development and continuous feedback.
UI/UX	User Interface/User Experience design, focused on usability, simplicity, and accessibility for both job seekers and recruiters.
MongoDB	A flexible NoSQL database used for scalable and schema-less data storage in real-time applications.
React Native	A JavaScript framework used to build cross-platform mobile applications for Android with a native feel.
Frontend	The mobile app interface developed using React Native, allowing users to interact with job features, wallet, and notifications.
Backend	Server-side logic and APIs developed using Node.js and Express.js, handling authentication, job data, payments, and more.

Abstract

This project presents a smart and scalable solution for Digital Chef Sync — an automated workforce management and recruitment platform designed specifically for the food service industry. The system is aimed at solving inefficiencies found in traditional hiring practices such as manual job matching, communication delays, and payroll inconsistencies.

The core challenge arises from outdated recruitment methods used by restaurants and event management companies, which struggle to quickly find and manage staff like chefs, waiters, and kitchen helpers. To overcome this, Digital Chef Sync offers a fully integrated platform that automates job postings, matches candidates based on skills and shift availability, and streamlines communication between job seekers and recruiters.

The project follows the Scrum methodology, using iterative development through structured sprints, sprint reviews, and retrospectives ensuring adaptability and ongoing improvement throughout the development life cycle.

Key features include real-time job matching, in-app wallet for secure payments, automated time tracking, role-based access control, and dynamic shift scheduling. Recruiters and job seekers both benefit from smart notifications, transparent application tracking, and automated invoicing — reducing hiring time and improving overall efficiency.

The platform is built using React Native for the frontend, Node.js for the backend, and MongoDB for scalable data storage. The design prioritizes mobile-first usage, reliability, high uptime, and compliance with secure payment handling practices. The solution ensures better hiring transparency, improved operational flow, and enhanced experience for both businesses and workers in the food service domain.

Keywords:

- Smart Hiring Automation
- Real-Time Job Matching
- In-App Wallet & Secure Payments
- Shift-Based Recruitment
- Automated Communication
- Time Tracking & Payroll
- Role-Based Access Control
- Agile Development (Scrum Methodology)
- Scalable Workforce Architecture
- Hospitality & Food Industry Staffing

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CHAPTER 1

INTRODUCTION

1.1 Motivation

The idea behind ***Digital Chef Sync*** was born out of a real-world gap in the food and hospitality sector. With increasing demand for fast and flexible hiring in restaurants, cafes, and event management companies, finding the right staff — whether for short-term gigs or permanent roles — has become a major challenge. Chefs, waiters, and kitchen workers often rely on word of mouth or informal channels to find work, while businesses struggle to hire people with the right skills at the right time.

During initial research and interviews with local restaurant managers and staff, it became evident that the industry lacks a centralized, reliable platform that streamlines workforce hiring and day-to-day staff management. This motivated the development of **Digital Chef Sync** — a smart, digital, and eco-friendly workforce management platform specifically built for the food industry.

The project is not just about simplifying recruitment; it's about re-imagining the hiring process, increasing transparency, reducing delays, and improving job accessibility for skilled workers. With rising digital adoption in all sectors, the food industry deserves a solution tailored to its unique staffing dynamics — and that's exactly what **Digital Chef Sync** aims to deliver.

1.2 Problem Statement

The current recruitment and workforce management process in the food industry is highly fragmented and outdated. Most restaurants and event companies hire through personal contacts, social media posts, or agencies — which is time-consuming, inconsistent, and often leads to skill mismatches. Job seekers have limited access to real-time opportunities that match their experience, and employers struggle with communication delays, no-shows, and unverified profiles.

There's also a lack of digitized payroll and time-tracking systems. Salaries are often paid in cash, with no proof of hours worked or clarity for both parties. Invoices, attendance records, and job status updates are handled manually, leaving room for errors and disputes.

This absence of a structured, efficient, and transparent system leads to inefficiencies in operations, delays in hiring, and dissatisfaction among both job providers and job seekers. There is a clear need for a unified digital platform that offers smart hiring

tools, real-time communication, financial transparency, and role-specific job matching in a single app.

1.3 Goals and Objectives

The main goal of **Digital Chef Sync** is to revolutionize how the food industry manages its workforce by providing a tech-driven, user-centric platform. It is designed to connect skilled job seekers — such as chefs, head chefs, waiters, and kitchen assistants — with employers like restaurants and event managers efficiently and transparently.

Key Objectives:

- To build a responsive mobile application for Android users using **React Native**.
- To develop a secure backend using **Node.js**, with **MongoDB** for storing user data and job-related records.
- To enable **real-time job matching** based on user skills, availability, location, and past experience.
- To support **automated notifications**, reminders, and messaging between employers and businesses.
- To integrate a **secure in-app wallet** that handles salary payments, payment history, and invoices.
- To offer **time tracking** tools that allow accurate recording of work shifts and hours.
- To support multiple **subscription models** (free and paid) for recruiters and job seekers.
- To ensure 24/7 availability, high uptime, and a modern eco-friendly approach by eliminating the need for paperwork.

1.4 Project Scope

Digital Chef Sync is a complete workforce management solution aimed specifically at the food service industry. The platform will cater to two main user types:

- **Job Seekers** – including chefs, waiters, kitchen helpers, and other staff members who are actively looking for short-term or long-term opportunities.
- **Recruiters** – including restaurant owners, kitchen managers, and event planners who need reliable staff on demand.

The app will offer a range of features including:

- **Profile creation and verification** for both businesses and employers.
- **Job listing and search filters** that allow accurate, real-time job discovery.

- **Skill-based and availability-based matching** to ensure the right fit.
- **Automated communication tools**, job status updates, and notification alerts.
- **In-app wallet integration** for secure payments, salary tracking, and payment history.
- **Time and shift tracking** tools, along with downloadable invoices for each job.
- **Admin dashboard** for managing user roles, subscriptions, and overall system analytics.
- **Cloud-based data storage**, ensuring remote accessibility and data backup.

The project is being developed using the **SCRUM methodology**, ensuring an iterative, feedback-driven development process with defined sprints, sprint reviews, and retrospectives. While the core foundation of the project is being implemented in FYP-1, the complete functionality, testing, and deployment are planned for FYP-2.

CHAPTER 2

RELEVANT BACKGROUND & DEFINITIONS

2.1 Background Overview

The food industry is known for being fast-paced, highly dynamic, and extremely dependent on human capital. Whether it's a regular restaurant day or a large-scale catering event, the need for skilled kitchen staff, waiters, chefs, and temporary workers is constant. However, despite this need, most businesses still rely on traditional methods to hire staff — such as word-of-mouth, referrals, printed notices, or social media posts. These approaches are not only inefficient but also highly unreliable, especially during peak hours or emergency requirements.

On the other side, job seekers in this industry, such as chefs and kitchen helpers, often have limited access to trustworthy job listings or verified recruiters. Many skilled workers struggle to find jobs that match their experience, location, and availability. They also face issues like payment delays, unclear job expectations, and lack of job continuity.

This situation reflects a serious gap between demand and supply — not because of a lack of talent or opportunity, but due to the absence of a structured, efficient, and reliable system.

With growing digital adoption in every sector, it makes sense to introduce a **smart, eco-friendly, and user-centric platform** tailored specifically for the food service workforce. This is where **Digital Chef Sync** comes in — a platform designed to transform how restaurants and workers connect, communicate, and collaborate in real-time.

2.2 Existing Systems and Their Limitations

Before developing Digital Chef Sync, it was important to understand what existing platforms are available and where they fall short.

Some general-purpose platforms like **Rozee.pk**, **LinkedIn**, and **Indeed** do offer job listings, but they are not designed for the **real-time**, **shift-based**, or **skill-filtered** hiring needs of the food service sector. Others, like **Upwork** or **Fiverr**, are focused more on freelance or project-based work — not on daily shift jobs or in-person roles in restaurants.

Even the platforms that do offer job posting and applications are usually missing features like:

- **Live availability tracking** (to see who is free to work today)
- **Skill-based filtering** (e.g., hiring only grill chefs or waiters with banquet experience)
- **In-app wallet and payment tracking**
- **Time tracking and auto-generated invoices Instant alerts and messaging**

Most small and mid-sized restaurants can't afford complex HR systems or expensive third-party staffing services. They need something lightweight, mobile-friendly, and instantly usable — which none of the current platforms fully deliver.

Thus, the idea of Digital Chef Sync was to combine multiple disconnected features (job finding, communication, time tracking, and salary management) into **one single digital platform**, specifically for this industry.

2.3 Purpose of the Project

The primary purpose of Digital Chef Sync is to create a **smart, scalable, and eco-friendly workforce management platform** that helps job seekers and recruiters in the food industry connect more efficiently.

It is not just a job-posting app. It is a **complete ecosystem** that supports:

- **Skill-based job matching**
- **Instant communication**
- **Time tracking**
- **Automated invoicing**
- **Secure salary transactions**
- **Subscription flexibility**

This project is built to make hiring easier for businesses and job hunting easier for workers — saving time, effort, and resources for both.

It is also designed to be **environmentally conscious**, reducing the need for paperwork, printed job contracts, cash slips, or attendance registers.

2.4 Definitions of Key Terms

Here are some of the important terms used throughout this project:

- **Job Seeker:** A user (chef, waiter, kitchen helper, etc.) looking for employment opportunities through the app.
- **Recruiter:** A restaurant, event company, or business manager looking to hire staff using the app.
- **Skill-Based Matching:** The system matches job seekers to jobs based on specific skills selected in their profile (e.g., baking, serving, dishwashing, fast-food cooking, etc.).
- **Smart Scheduling:** The recruiter can schedule jobs or shifts based on staff availability, making it easier to plan ahead or fill urgent gaps.

- **In-App Wallet:** A secure digital wallet where job seekers can receive salaries, track their earnings, and maintain a payment history.
- **Time Tracking:** A feature that tracks the number of hours worked by a job seeker on each shift. This data is used to calculate payments and generate automated invoices.
- **Automated Invoicing:** The app can create and send digital invoices for completed work based on the time tracking data — making payment processing faster and more transparent.
- **Subscription Plans:** Both recruiters and job seekers can choose between free and paid plans. Paid plans offer extra features like unlimited job posts, early access to listings, or premium profiles.
- **Admin Dashboard:** A backend system managed by platform administrators to monitor app activity, user reports, payments, and system analytics.
- **SCRUM:** An Agile project management methodology used in the development of Digital Chef Sync. It involves working in sprints, with regular reviews and iterations.

2.5 Summary

To summarize, this chapter explains the real-world background that led to the creation of Digital Chef Sync, reviews the limitations of existing systems, and defines the key features and concepts involved in the project. The food industry needs faster, smarter, and more transparent hiring solutions — and Digital Chef Sync is designed to fulfill that exact need. Through a carefully designed mobile app and a well-structured backend system, this platform introduces efficiency, fairness, and clarity in the way food service staffing is handled.

CHAPTER 3

LITERATURE REVIEW & RELATED WORK

3.1 Literature Review

Recent studies and industry trends in the hospitality and food service sector have emphasized the need for automation in recruitment, scheduling, and payment workflows. With high employee turnover, unpredictable demand, and shift-based work being the norm, traditional hiring processes are no longer effective. Several food-tech and HR-tech initiatives have attempted to address these concerns with varying success.

3.1.1. Challenges in Manual Hiring Processes

Manual processes in restaurants and event staffing lead to poor job-role matching, missed shifts, and unorganized communication. Managers spend hours reviewing irrelevant resumes or calling potential candidates, causing delay and inefficiency in high-demand situations.

3.1.2. Benefits of Automation

Automated hiring platforms provide real-time candidate matching, smart filters based on skills and availability, and automated shift scheduling — reducing hiring time and enhancing operational speed.

3.1.3. Secure Data and Payment Handling

Platforms with role-based access ensure sensitive data like salary records and job details are protected. In-app wallets, integrated with secure payment gateways, allow transparent, error-free salary disbursement and transaction history.

3.1.4. Real-Time Communication

Timely notifications regarding job acceptance, shift start time, or payment confirmation boost staff engagement and ensure a smoother workflow.

3.1.5. Agile Development Approach

The use of **SCRUM methodology** ensures continuous improvement and system adaptability by incorporating user feedback during each sprint cycle.

3.1.6. Scalability and Future Readiness

Technologies like **React Native**, **Node.js**, and **MongoDB** ensure that the platform can easily scale with increasing demand, whether it’s a single restaurant or a large event company.

3.2 Related Work

Various job platforms exist in the market, but none of them are optimized for the speed, specificity, and trust required in the food service sector. Most either serve the broader job market or target entirely different industries.

3.2.1. General Job Portals (LinkedIn, Rozee.pk, Indeed)

These platforms offer a wide range of job listings but fail to deliver **real-time, skill-based, and shift-focused hiring**, which is crucial in restaurant operations. They do not support in-app communication, time tracking, or digital payments — all of which are essential in fast-paced hospitality environments.

3.2.2. Freelance Platforms (Upwork, Fiverr)

While they provide a way to hire freelancers, these platforms are not built for **on-site, short-term, or shift-based roles**. They also lack transparency when it comes to physical job attendance and offer no in-person trust-building tools or verification.

3.2.3. Informal Methods (Facebook, WhatsApp, Word-of-Mouth)

Many small businesses still rely on informal hiring methods, which are unreliable, unstructured, and risky. These methods offer **no recordkeeping, no rating system, and no assurance of skills or attendance**, often leading to loss of time and money.

None of these systems provide a **complete, industry-focused, digital ecosystem** that combines job discovery, smart scheduling, salary management, and trust-based hiring in one mobile app.

3.3 Gap Analysis

Despite the presence of general job portals and staffing solutions, key gaps remain — especially in terms of industry-specific needs, end-to-end automation, and flexible customization. Here's a breakdown of the current limitations and how **Digital Chef Sync** aims to address them.

3.3.1. Current Problems in Existing Systems

- **Manual Shortlisting & Hiring**
  Recruiters still rely on browsing through piles of irrelevant applications or making countless calls to find last-minute staff, causing delays and misfits.
- **Unreliable Payment Handling**
  Without automated attendance and payroll integration, salary disbursement is often delayed or inaccurate, affecting staff trust and retention.
- **Lack of Real-Time Communication**
  Most platforms don't send timely updates regarding job confirmations, shift changes, or payment status, leading to confusion among both recruiters and workers.
- **Scalability Issues**
  As staffing needs grow, especially during events or busy seasons, existing platforms become slow, fragmented, or dependent on manual intervention.
- **Inflexible Platforms**
  Most current tools follow a "one-size-fits-all" approach, offering no room for industry-specific customization or workflow adaptation.

3.3.2. What's Missing in Current Solutions

1. Lack of **integrated payroll with time tracking**
2. No support for **shift-based dynamic hiring**
3. Inability to **send real-time alerts** to users
4. Minimal or no **modular customization** for company-specific rules
5. No **in-app digital wallet** to manage payments and earnings

3.3.3. How Digital Chef Sync Fills the Gaps

1. **Automated Recruitment Workflow:**
   The platform automates candidate matching based on skills, availability, and role preferences — saving recruiters time and improving accuracy.

2. **Integrated Time Tracking + Wallet System:**
   Workers can clock in/out from within the app, and their attendance feeds directly into salary calculations via an in-app wallet — ensuring real-time, secure payouts.

3. **Instant Communication:**
   Real-time push notifications alert users about job invites, confirmations, shift reminders, and payment releases — eliminating communication gaps.

4. **Scalable & Modular Architecture:**
   Built using **React Native** (frontend), **Node.js** (backend), and **MongoDB** (database), the platform can handle growing user bases and new feature additions with ease.

5. **Customizability & Business Fit:**
   Designed specifically for the **food and hospitality sector**, Digital Chef Sync allows businesses to apply their own shift structures, approval hierarchies, and rules for hiring.

Why It Matters:

By targeting the root problems of manual hiring in the food industry, **Digital Chef Sync** provides a powerful, future-ready platform that streamlines staffing operations, boosts reliability, and enhances transparency. It not only fills the gaps in existing solutions but also sets a new standard for workforce management in restaurants, cafés, and event staffing agencies.

REFERENCES

1. **Qwick:**
On-Demand Staffing for Hospitality. Available at
https://www.qwick.com/
This platform provides insights into how real-time, shift-based staffing works in the food service industry. It highlights key features such as worker-vetting, flexible scheduling, and fast payouts.

2. **Instawork:**
Flexible Staffing Solutions for Restaurants & Events. Available at
https://www.instawork.com/
Instawork is a leading example of automation in hospitality hiring. It offers functionality like mobile-based shift management, skill-based filtering, and attendance tracking for hourly workers.

3. **Capterra;**
Best Employee Scheduling and Workforce Management Software. Available at
https://www.capterra.com/workforce-management-software/
This source offers a comparative review of workforce management platforms, including features like time tracking, in-app wallets, and real-time communication tools that align with the vision of Digital Chef Sync.

APPENDICES

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Copy of Evaluation Comments by Jury for Project – II End Semester Evaluation
A7. Meetings' Minutes
A8. Research Paper
A10. Any other

A0. COPY OF PROJECT REGISTRATION FORM

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A1A. PROJECT PROPOSAL AND VISION DOCUMENT

Any standard template may be used, as per project need approved by Project Coordinator & Supervisor. Following is a suggestive outline. **Also, the same outline should be used for Project Proposal Presentation.**

1 Introduction
1.1 Problem Statement
1.2 Project Motivation
1.3 Objectives
1.4 Literature Review
2 Project Vision
2.1 Business Case and SWOT Analysis
2.2 Background, Business Opportunity, and Customer Needs
2.3 Business Objectives and Success Criteria
2.4 Project Risks and Risk Mitigation Plan
2.5 Assumptions and Dependencies
3 Project Scope
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4.1 SDLC Approach (Waterfall/Agile/any model)
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7 Budget/Costing
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8.3 Phase III - Release Candidate
8.4 Phase IV - Final Product
9 Proposed GUI (Disposable Prototype)
10 Meetings held with supervisor and/or client.
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A1B. COPY OF PROPOSAL EVALUATION COMMENTS BY JURY

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A2. REQUIREMENT SPECIFICATIONS

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1. Introduction
1.1. Purpose of Document
1.2. Intended Audience
1.3 Abbreviations
2. Overall System Description
2.1. Project Background
2.2. Project Scope
2.3. Not In Scope
2.4. Project Objectives
2.5. Stakeholders
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2.7. System Constraints
2.8. Assumptions & Dependencies
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3.3. Communications Interfaces
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5. Non-functional Requirements
5.1. Performance Requirements
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5.3. Security Requirements
5.4. User Documentation
6. References

A3. DESIGN SPECIFICATIONS

Any standard template may be used, as per project need approved by Project Coordinator & Supervisor. Following is a suggestive outline.

1 Introduction
1.1 Purpose of Document
1.2 Intended Audience
1.3 Project Overview
1.4 Scope
2 Design Considerations
2.1 Assumptions and Dependencies
2.2 Risks and Volatile Areas
3 System Architecture
3.1 System Level Architecture
3.2 Software Architecture
4 Design Strategy
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5.2.2 State Diagram
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5.2.2.2 <State Diagram 2>
5.2.2.n <State Diagram n>
6 References

A4. OTHER TECHNICAL DETAIL DOCUMENTS

Test Cases Document

UI/UX Detail Document

Coding Standards Document

Project Policy Document

User Manual Document

A5. FLYER & POSTER DESIGN

A6. COPY OF EVALUATION COMMENTS

COPY OF EVALUATION COMMENTS BY SUPERVISOR FOR PROJECT – I MID SEMESTER EVALUATION

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COPY OF EVALUATION COMMENTS BY SUPERVISOR FOR PROJECT – II MID SEMESTER EVALUATION

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A7. MEETINGS' MINUTES & Sign-Off Sheet

Original Documents should be placed when submitting document to Project Coordinator. Document should be signed by the supervisor and all other members present in the meeting (wherever possible). (**Note**: Please remove this line when attach copy that is required)
Weekly meetings' minutes are required (held with Supervisor and/or with client). Important group discussions can also be included here.

A8. DOCUMENT CHANGE RECORD

Date	Version	Author	Change Details

A9. PROJECT PROGRESS

Photostat of Incremental versions of Requirement Signoff sheet submitted to Project Coordinator. (**Note**: Please remove this line when attach copy that is required)

A10. RESEARCH PAPER