



# VAAL UNIVERSITY OF TECHNOLOGY

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**Project Title:** Development of a secure online system for students check ins, Logbook management and Wil monitoring

**Company:** Moepi Publishing

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**Date:** 15 October 2025 to 25 November 2025

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221648380

## **Declaration**

1 Codnell Chabalala declare that this these is my original work and that it has not been presented to any other university or institution for similar or any other degree award.

---

Signature

Date

This is to certify that this research project titled: Development of a Secure Online System for Student Check-Ins, Logbook Management, and WIL Monitoring is written by Codnell Chabalala with the 221648380 under my supervision.

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Date

## Acknowledgement

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## **Abstract**

This study explains the development of a secure online system that helps students complete important Work Integrated Learning tasks. These tasks include checking in daily, uploading logbooks, and submitting monthly timesheets. The purpose of the study was to solve the problems found in manual WIL processes, such as lost documents, slow feedback, and difficulty tracking student progress. The research problem focused on finding a simple and reliable digital method that allows students, mentors, and administrators to work smoothly and access information in real time.

The system was designed using a clear structure that connects the frontend, backend, and database. The frontend provides an easy-to-use web interface where users can log in, submit files, and view their activity. The backend, built with the Flask framework, handles all system logic and ensures that each user has the correct access based on their role. The database securely stores student records, check-in history, logbooks, and timesheets. To improve safety, the system uses two-factor authentication, secure file uploads, and strict role management. Students use the system to record daily attendance and upload required documents, while mentors, WIL coordinators, and MICTSETA staff view progress, download files, and monitor performance.

The results of the system showed that digital WIL management reduces human error, saves time, and makes information available instantly. It also improves communication because mentors and administrators can quickly see updates and respond when needed. The system creates a more organized way of handling student information and reduces the risk of missing or inaccurate records.

In conclusion, the study proves that a secure online system can greatly support WIL monitoring and document management. The system improves efficiency, strengthens security, and provides a modern solution for managing student activities. Future upgrades may include mobile access, advanced reporting, and integration with other institutional platforms.

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## **Acronyms and Abbreviations**

Abbreviations	Full meaning
MICSETA	Media, Information and Communication Technologies Sector Education and Training Authority
SETA	Sector Education and Training Authority
WIL	Work Integrated Learning
TAM	Technology Acceptance Model

*Table 1: Abbreviation*

# **Chapter 1: Introduction**

## **1.1 INTRODUCTION**

### **Scope:**

This project is about creating an online system that helps students record their attendance, upload logbooks, and submit timesheets while doing work integrated learning. It also helps mentors, WIL coordinators, and MICTSETA administrators easily track and check student progress online in real time.

### **Context:**

WIL helps students gain real work experience while studying. It allows students to apply academic knowledge in real work environments. However, many institutions still use emails to track student progress, which is slow and often inaccurate. Using technology can solve these problems by making WIL monitoring easier, faster, and more reliable through a secure online system that helps students, mentors, and coordinators work together better.

### **Importance:**

This project is important because it makes tracking student progress in WIL faster, safer, and more reliable. It combines everything into one online system where students, mentors, and WIL co-ordinator can easily manage attendance and reports. The system saves time, keeps data safe, and helps students stay responsible. Overall, it makes WIL programs more organized, secure, and efficient for everyone, addressing a critical gap in the education and training sector.

## **1.2 PROBLEM STATEMENT**

The main problem is the difficulty in accurately tracking student attendance and progress during Work-Integrated Learning (WIL). Many institutions still use paper logbooks and manual registers, which are time-consuming, unreliable, and often contain errors. This makes it hard for mentors, WIL coordinators, and SETA administrators to monitor student activities and provide timely feedback.

This problem is important because ineffective tracking can lead to poor communication, delayed assessments, and a lack of accountability in WIL programs. Developing a secure

online system can help solve this issue by allowing students to record their daily activities digitally while giving administrators real-time access to monitor and evaluate student progress efficiently

### **1.3 DELIMITATION**

This project will not include advanced features such as payroll management, detailed academic grading systems, or the development of a separate mobile application. The main focus will be on creating a functional and secure web-based platform that allows students to record their daily attendance, upload logbooks, and submit timesheets during their WIL placement. Mentors, coordinators, and SETA administrators will use the same platform to monitor student progress, verify attendance, and generate reports. By limiting the project scope to WIL tracking and reporting, the development process remains focused, manageable, and aligned with the core objective of improving efficiency and transparency in student monitoring.

### **1.4 ASSUMPTIONS**

This project assumes that everyone using the system (students, mentors, WIL coordinators, and SETA administrators) will have internet access and a device that can open a web browser. It also assumes that users know how to use basic computer features like logging in, uploading files, and viewing reports. The system expects that institutions already have their own ways to check attendance and assess logbooks, and the system will only help with these processes, not replace them. Lastly, it is assumed that all users will give correct and honest information when using the system.

### **1.5 RESEARCH OBJECTIVES:**

#### **Main objective:**

To design and implement a web-based Work-Integrated Learning (WIL) monitoring system that enables students, mentors, WIL coordinators, and SETA administrators to track student activities, attendance, and progress effectively.

#### **Specific Objectives:**

##### **Objective 1:**

- To develop a secure, web-based platform for students to check in three times daily and record their current activities.

**Objective 2:**

- To implement an authentication system that ensures only registered students, mentors, WIL coordinators, and SETA administrators can access the system

**Objective 3:**

- To integrate a database for storing student check-ins, logbook submissions, monthly timesheets, and user profiles.

**Objective 4:**

- To provide mentors, WIL coordinators, and SETA administrators with an interactive dashboard to view, filter, and monitor student progress.

**Objective 5:**

- To allow mentors to upload graded and signed logbooks and monitor student daily activities.

**Objective 6:**

- To enable SETA administrators to download student monthly timesheets for verification and overall progress tracking.

**Objective 7:**

- To deploy the system in a centralized environment accessible to all users for efficient monitoring and reporting.

## **1.6 IMPORTANCE OF STUDY**

The Check-In System will play a vital role in improving the monitoring and accountability of students participating in Work-Integrated Learning (WIL) programs. It provides an innovative solution to ensure that students are genuinely completing their required daily activities and check-ins.

For SETA administrators, the system offers reliable and verifiable data that can be used for reporting, auditing, and evaluating student progress. For mentors and WIL coordinators, it simplifies the process of tracking student activities, reviewing logbooks, and monitoring performance, reducing administrative workload and improving efficiency. For students, it provides a transparent and convenient way to record daily check-ins, submit logbooks, and upload monthly timesheets, whether they are working on-site or remotely.

From an academic and technical perspective, this project demonstrates the practical application of web development, database integration, authentication mechanisms, and interactive dashboards to solve real-world challenges faced by educational and professional institutions operating under hybrid training models

## **1.7 CHAPTER OUTLINES**

Chapter 1 introduces the background of the study and explains the problem, purpose, and objectives of developing the web-based WIL Check-In System. It also discusses the scope, limitations, and importance of the project.

Chapter 2 provides the theoretical framework of the study and includes a detailed literature review related to WIL monitoring systems, digital check-in tools, and web-based solutions.

Chapter 3 describes the research methodology used in the project. It explains the system development process, tools, technologies, and the data collected during the design and implementation of the system.

Chapter 4 presents the summary, conclusions, and recommendations of the study, showing how the system solves the problem and suggesting improvements for future development.

## **1.8 SUMMARY**

Chapter 1 introduces the development of a web-based Check-In System designed to improve the monitoring of students participating in Work-Integrated Learning (WIL). The chapter explains that many institutions still rely on paper-based and email-driven processes, which are slow, inaccurate, and difficult to manage. The proposed system provides a centralized online platform where students can record attendance, submit logbooks, and upload timesheets, while mentors, WIL coordinators, and SETA administrators can monitor progress in real time.

The problem addressed is the lack of accurate and efficient tools for tracking student activities during WIL, leading to delays, errors, and poor communication. The chapter outlines the scope of the project, which focuses on WIL monitoring only, excluding

advanced features such as payroll and mobile app development. Assumptions include user access to the internet and basic computer skills.

The main objective is to design and implement a secure online system for monitoring WIL activities. Specific objectives include developing check-in features, authentication mechanisms, a database, dashboards, logbook review tools, and administrator reporting functions, as well as deploying the system in a centralized environment.

Finally, the chapter highlights the importance of the study, emphasizing how the system enhances accountability, transparency, and efficiency for all stakeholders involved in WIL. The project also demonstrates practical application of web technologies to solve real-world academic and administrative challenges.

## **Chapter 2: Literature Review**

### **2.1 INTRODUCTION**

This chapter presents a review of existing literature related to attendance monitoring systems, Work-Integrated Learning (WIL), and digital tracking solutions in educational and workplace settings. It explores previous studies, theoretical frameworks, and technological approaches that have been applied to monitor learner or employee activities, track progress, and improve accountability. The chapter also highlights gaps in current methods and identifies the need for a secure, web-based system like the Check-In System to support efficient monitoring of student participation during WIL programs.

### **2.2 LITERATURE RIVIEW**

Attendance monitoring and Work-Integrated Learning (WIL) are essential for ensuring that students gain real workplace experience while staying accountable for their activities. Research shows that accurate tracking of attendance and tasks supports performance evaluation, communication between students and mentors, and overall program effectiveness (Smith & Jones, 2020; Nkosi, 2019). Traditional methods, such as paper logbooks and manual registers, are still widely used, but they are often slow, prone to errors, and difficult to manage. These weaknesses can lead to incomplete records, delayed feedback, and miscommunication between students, mentors, and administrators.

Digital solutions have been developed to address these limitations. Online check-in systems and mobile apps allow real-time tracking of student activities, reduce administrative workload, and provide instant access to performance data (Patel & Kumar, 2021). Interactive dashboards make it easier for mentors and coordinators to monitor trends, identify students who need support, and generate reports efficiently. Despite these advantages, some studies note challenges, such as the need for reliable internet, potential security risks, and difficulties for users unfamiliar with technology (Adeyemi, 2020). This indicates that while digital systems improve efficiency, careful design and user training are necessary to ensure success.

The literature also highlights the importance of theoretical frameworks in designing effective monitoring systems. Activity Theory explains how digital tools can mediate learning tasks and

improve accountability by linking student activities with reporting mechanisms. Systems Theory emphasizes that the success of a monitoring system depends on the interaction of its components, including students, mentors, administrators, and technology. The Technology Acceptance Model (TAM) shows that ease of use and perceived usefulness are key factors influencing whether users adopt new digital systems. By combining these insights, it becomes clear that a secure, web-based WIL Check-In System can address gaps in traditional methods while supporting accountability, monitoring, and data-driven decision-making.

In summary, the reviewed literature demonstrates that traditional attendance tracking methods are inefficient and prone to errors, while digital systems offer significant improvements in efficiency, accuracy, and real-time monitoring. However, challenges such as accessibility, security, and user adoption must be considered. These findings support the need for a secure, user-friendly Check-In System that integrates attendance tracking, logbook submission, and timesheet management into a single platform, improving WIL monitoring and program effectiveness.

## **2.2 Conceptual framework of the project**

The conceptual framework of the Check-In System outlines the key concepts, definitions, and ideas that form the foundation of the study. It provides a structured understanding of how the system functions and its role in monitoring Work-Integrated Learning (WIL) activities.

### **Key Concepts:**

1. **Work-Integrated Learning (WIL):** WIL refers to educational programs that combine academic learning with practical workplace experience. It allows students to apply theoretical knowledge in real work environments while gaining professional skills. In this study, WIL is the central activity being monitored through student check-ins, logbook submissions, and timesheets.
2. **Attendance Monitoring:** This concept involves tracking the presence and activities of students in a structured manner. Traditional attendance methods, such as paper registers, are prone to errors and inefficiencies. The Check-In System applies digital attendance monitoring to ensure accuracy, accountability, and ease of verification.

3. **Web-Based System:** A web-based system is an online platform accessible through browsers, enabling users to perform tasks remotely. The Check-In System leverages this technology to allow students, mentors, WIL coordinators, and SETA administrators to access the system anytime and anywhere.
4. **Authentication and Security:** Authentication ensures that only authorized users can access the system. This is critical to protect sensitive data, maintain integrity of student records, and prevent unauthorized access.
5. **Dashboard and Reporting:** Interactive dashboards and reporting features allow mentors, WIL coordinators, and SETA administrators to monitor student check-ins, view logbooks, and generate monthly timesheets. This concept supports informed decision-making and performance evaluation.

By linking these concepts, the conceptual framework provides a clear understanding of how the Check-In System operates to achieve its objectives of improving accountability, monitoring student activities, and supporting the efficient management of WIL programs.

## **2.3 THEORETICAL FRAMEWORK**

The theoretical framework of the Moepi Check-In System project provides the underlying principles and theories that guide the design, implementation, and evaluation of the system. It links the problem of monitoring student activities during Work-Integrated Learning (WIL) to established theories in education, technology adoption, and workplace learning.

### **1.Activity Theory:**

Activity Theory emphasizes the relationship between individuals, their tasks, and the tools they use to achieve objectives. In the context of this study, students are the subjects, WIL tasks are the activities, and the Check-In System serves as the mediating tool that enables effective monitoring and reporting. This theory supports the idea that digital tools can enhance productivity, accountability, and learning outcomes in workplace-based training.

### **2.Systems Theory:**

Systems Theory focuses on understanding how different components of a system interact to achieve a common goal. The Check-In System can be viewed as a system comprising students, mentors, WIL coordinators, SETA administrators, and a web-based platform. Each component interacts to collect, process, and report data on student activities. This framework helps explain

how the system integrates various elements to improve monitoring, data accuracy, and decision-making.

### **3. Technology Acceptance Model (TAM):**

The Technology Acceptance Model explains how users come to accept and use technology based on perceived usefulness and ease of use. Applying TAM to the Check-In System highlights the importance of designing an intuitive, user-friendly interface that encourages students, mentors, and administrators to actively engage with the platform, thereby ensuring reliable attendance tracking and performance monitoring.

By anchoring the study on these theories, the project establishes a solid foundation for understanding how a web-based monitoring system can improve WIL management, enhance accountability, and support both educational and administrative objectives.

## **2.4 SUMMARY**

The literature shows that tracking student activities during Work-Integrated Learning (WIL) is essential for accountability, performance evaluation, and effective program management. Traditional methods, such as paper logbooks and manual registers, are commonly used but are slow, prone to errors, and difficult to manage. Digital solutions, including online check-in systems and dashboards, improve efficiency, provide real-time monitoring, and reduce administrative workload. However, challenges such as internet access, data security, and user adoption must be addressed for these systems to be effective.

These findings highlight the significance of developing a secure, web-based Check-In System. By integrating attendance tracking, logbook submissions, and timesheet management into one platform, the system addresses the gaps identified in the literature. It directly responds to the problem of unreliable and time-consuming monitoring methods by providing a user-friendly and efficient solution for students, mentors, WIL coordinators, and SETA administrators.

## **Chapter 3: Project Methodology**

### **3.1 INTRODUCTION**

The methodology chapter outlines how the web-based Check-In System was designed, developed, and implemented to improve monitoring of student activities during Work-Integrated Learning (WIL). It connects the findings from the literature review to practical steps taken in the project. The chapter explains the research approach, system design methods, data collection and analysis procedures, and testing strategies used to ensure the system is functional, reliable, and secure.

### **3.2 Research Design**

The research design for the Moepi Check-In System project follows a descriptive and developmental approach, focusing on the design, development, and implementation of a web-based platform for monitoring student activities during Work-Integrated Learning (WIL) programs. This design serves as a blueprint for the project, guiding the steps required to achieve the system's objectives, from requirement analysis to deployment.

A descriptive approach is adopted to understand the challenges faced by students, mentors, WIL coordinators, and SETA administrators in tracking attendance, logging activities, and submitting reports. This involves studying existing attendance and monitoring methods to identify gaps and requirements for the new system.

The developmental aspect focuses on the actual creation of the web-based system. It involves system analysis, design, coding, database integration, testing, and deployment. This approach ensures that the system is tailored to the specific needs of WIL programs, providing secure login, multiple daily check-ins, logbook submission, interactive dashboards, and report generation.

By combining descriptive and developmental research designs, the project provides both a theoretical understanding of the problem and a practical solution through the implementation of a functional monitoring system.

### **3.3 Method of Data Analysis**

The method of data analysis for the Moepi Check-In System involves collecting, organizing, and examining data on student attendance, check-ins, logbook submissions, and monthly timesheets. Data is first prepared by collecting records from students, mentors, WIL coordinators, and SETA administrators and ensuring their accuracy and completeness.

The data is then tabulated in the system's database, organized by students, dates, activities, and user roles. This structure allows the system to generate summaries such as total daily check-ins, logbook submission status, and monthly timesheet reports.

Finally, analysis is carried out using the system's interactive dashboards and reporting tools. Patterns, trends, and irregularities in student activities are identified to help mentors, WIL coordinators, and SETA administrators evaluate performance, verify compliance with WIL requirements, and make informed decisions regarding supervision and training.

### **3.4 Presentation and Analysis of Data**

The data collected through the Moepi Check-In System is presented using interactive dashboards, tables, and charts, providing a comprehensive view of student attendance, daily check-ins, logbook submissions, and monthly timesheets.

On the admin dashboard, key statistics such as total check-ins, earliest check-in, most and least active students, and total absent days are displayed in cards for quick reference. Bar charts visualize monthly check-ins and check-ins by employee, highlighting trends and patterns in student activity. A pie chart provides an overview of attendance, showing the proportion of present versus absent students. The “All Employee Check-In History” table lists detailed records, including employee names, check-in dates, times, and comments. Pagination ensures efficient navigation through large datasets, displaying 10 records per page.

On the student dashboard, each student can view their daily check-in slots, record comments about current activities, and upload monthly timesheets. Cards indicate whether a check-in has been completed, while a table summarizes recent check-ins with timestamps and comments. This presentation allows students to track their own participation and maintain accountability.

The analysis of this data enables mentors, WIL coordinators, and SETA administrators to:

- Identify students who are consistently absent or late,
- Verify student activities and logbook submissions,
- Monitor daily and monthly performance trends, and
- Make informed decisions regarding supervision, feedback, and compliance with WIL requirements.

By combining visual dashboards, tables, and real-time updates, the system improves transparency, accountability, and efficiency in monitoring student progress during Work-Integrated Learning programs.

The system has a registration page where students, mentors, WIL coordinators, and administrators can create accounts by entering their name, email, password, user type, and organization. Dropdown menus make sure users select the correct roles and organizations.

Only users with email addresses ending in @tekete.co.za, @mictseta.org.za, or @vut.ac.za are allowed to register.

After registering, users can use the system for daily check-ins, logbook submissions, and monthly timesheet uploads. The registration page is simple, secure, and easy to use

## 3.5 System Design and Architecture

### 3.5.1 Use case Diagram

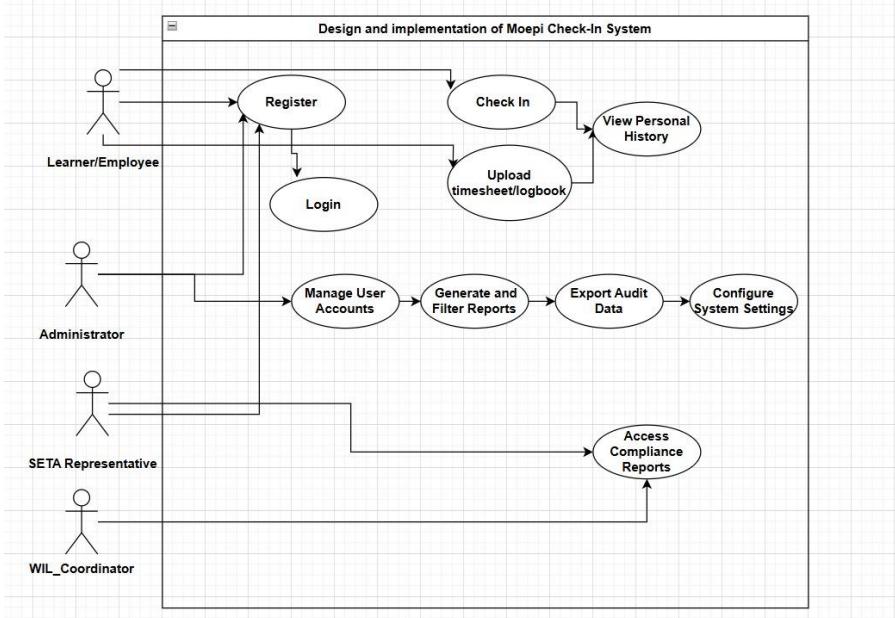


Figure 1:use case diagram

### 3.5.2 Entity Relationship Diagram (ERD)

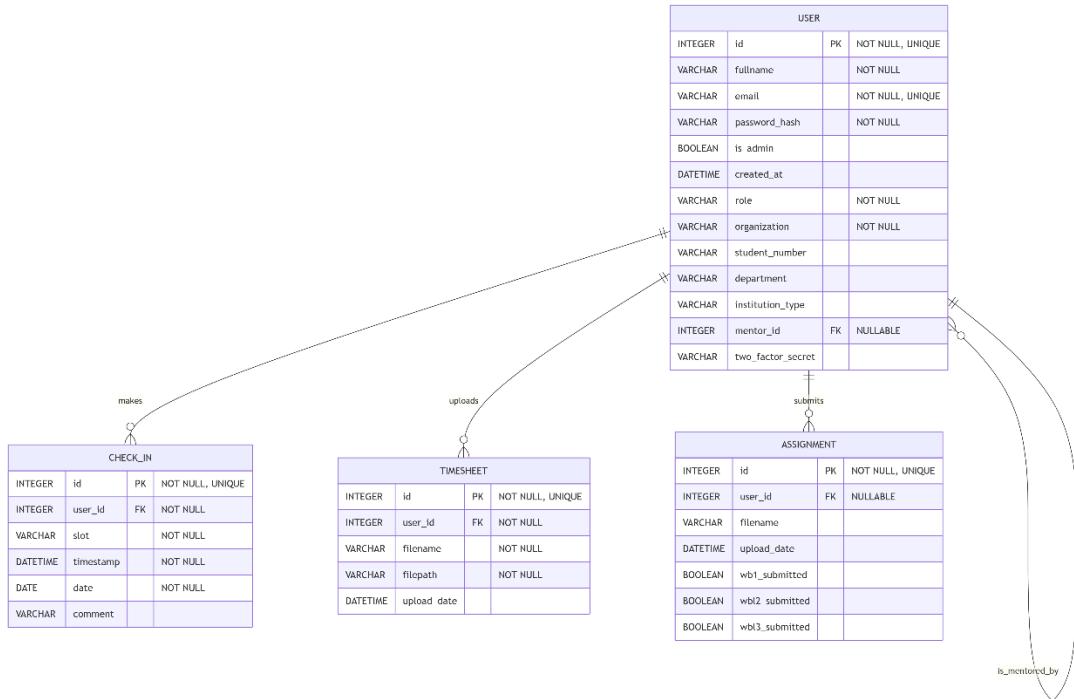


Figure 2:ERD

### 3.5.3 Flow chart

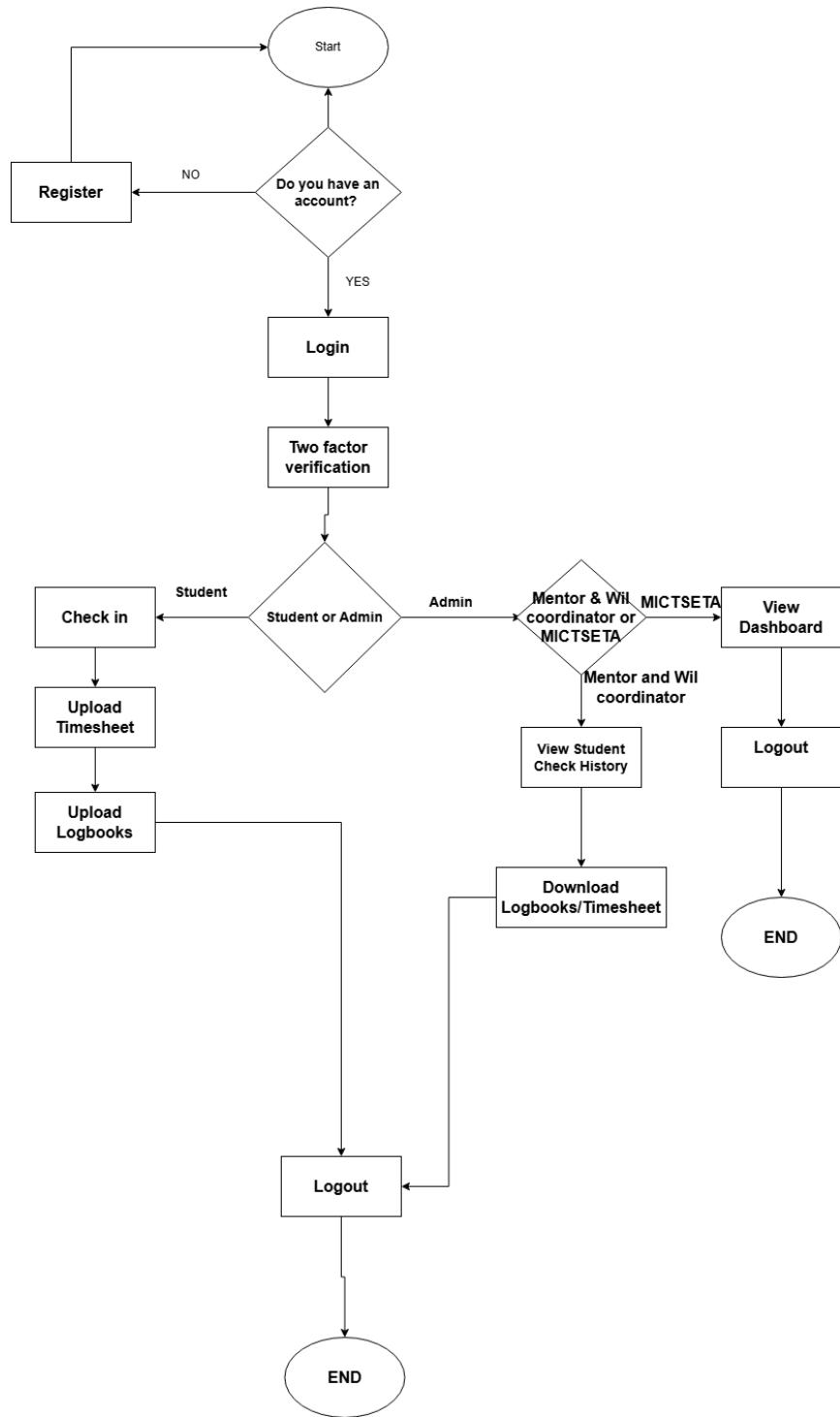


Figure 3:Flow chart

### 3.6 Technologies Used

The Moepi Check-In System was developed as a web-based application using modern and widely adopted technologies to ensure efficiency, reliability, and scalability. The backend of the system was implemented in Python, utilizing the Flask framework to handle server-side logic,

routing, and database interactions. Flask provides a lightweight yet robust environment for developing web applications and enables seamless integration with frontend components.

The frontend was built using HTML, CSS, and JavaScript, providing a responsive and interactive interface for students, mentors, WIL coordinators, and SETA administrators. HTML structures the content, CSS defines the styling and layout, and JavaScript enables dynamic elements such as charts, tables, filtering, and pagination.

Data exchange between the frontend and backend is facilitated using JSON, allowing efficient transfer of check-in records, logbooks, and timesheet information. All records, including attendance data, student comments, logbooks, and monthly timesheets, are stored securely in a MySQL relational database, ensuring data integrity and easy retrieval for reporting purposes.

The combination of these technologies ensures that the Moepi Check-In System is secure, user-friendly, and capable of supporting hybrid Work-Integrated Learning programs, providing administrators and mentors with real-time insights into student progress and participation.

## **3.7 FRONTEND Screenshots**

### **3.7.1 Registration Page**

The screenshot shows a registration form titled "Register". It includes two buttons: "Student" (highlighted in blue) and "Admin". The form fields are as follows:

- Full Name: Name Surname
- Email: Enter your Email
- Password: Enter your Password
- Confirm Password: Confirm Password
- Student Number: Enter Student Number
- Type of Institution: -- Select -- (dropdown menu)
- Institution Name: -- Select Institution -- (dropdown menu)
- Department: (dropdown menu)

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Figure 4: Registration page

### 3.7.2 Login Page

The screenshot shows a login form titled "Login". It includes two input fields: "Email" (placeholder: Enter your email) and "Password". Below the password field is a link "Forgot Password?". A large yellow button labeled "Login" is centered. At the bottom, there is a link "Don't have an account? Register here".

At the very bottom, there is a copyright notice: © 2025 Moepi Publishing — All Rights Reserved.

Figure 5: Login page

### 3.7.3 Student Dashboard

Welcome, Codnell Chabalala

Two-factor authentication successful!

Today's Check-ins (2025-11-17)

- 11:00 What are you working on? Check In
- 13:00 What are you working on? Check In
- 16:00 What are you working on? Check In

Recent Check-ins

Date	Time Slot	Comment	Timestamp

Check-IN  
Upload Timesheet  
Upload Assignment  
Logout

Figure 6:Student Dashboard

### 3.7.4 MICTSETA Dashboard

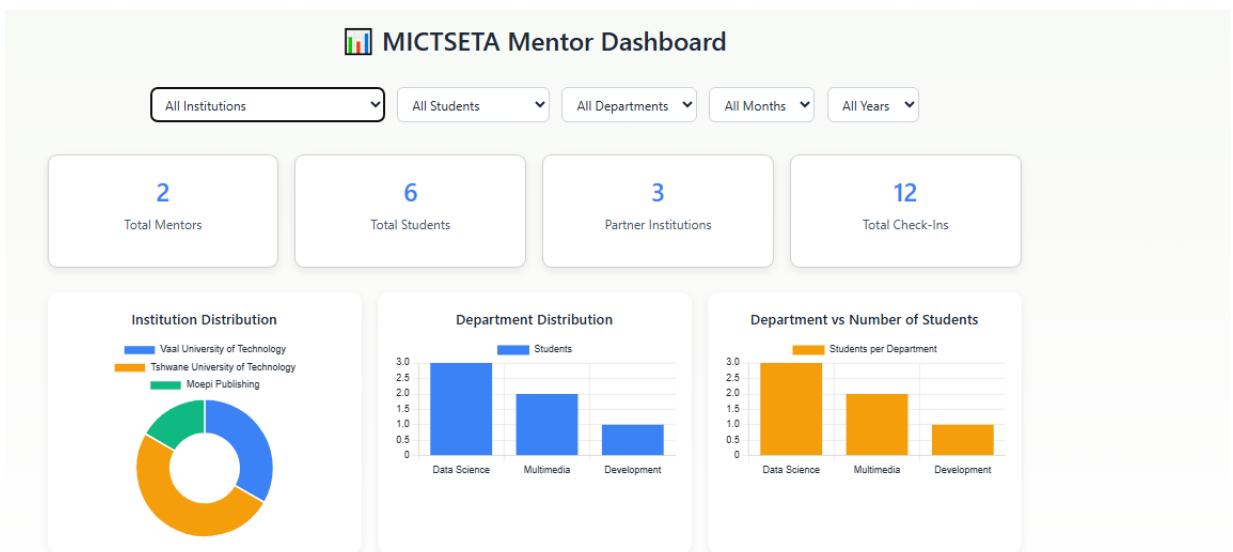


Figure 7: mictseta dashboard

### 3.7.5 WIL Coordinator Dashboard

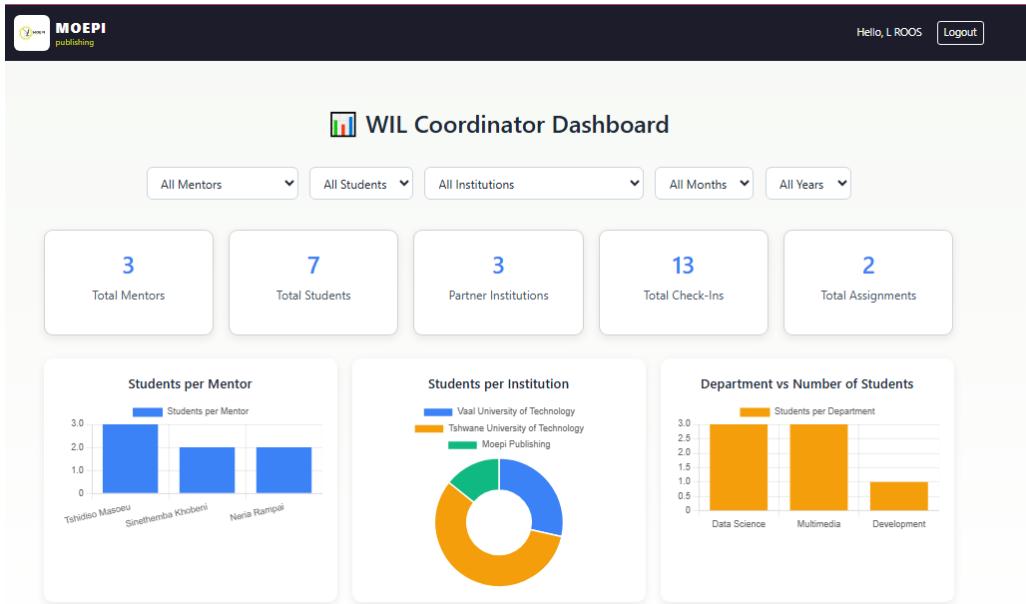


Figure 8:Wil co-ordinator dashboard

### 3.7.7 Mentor Dashboard

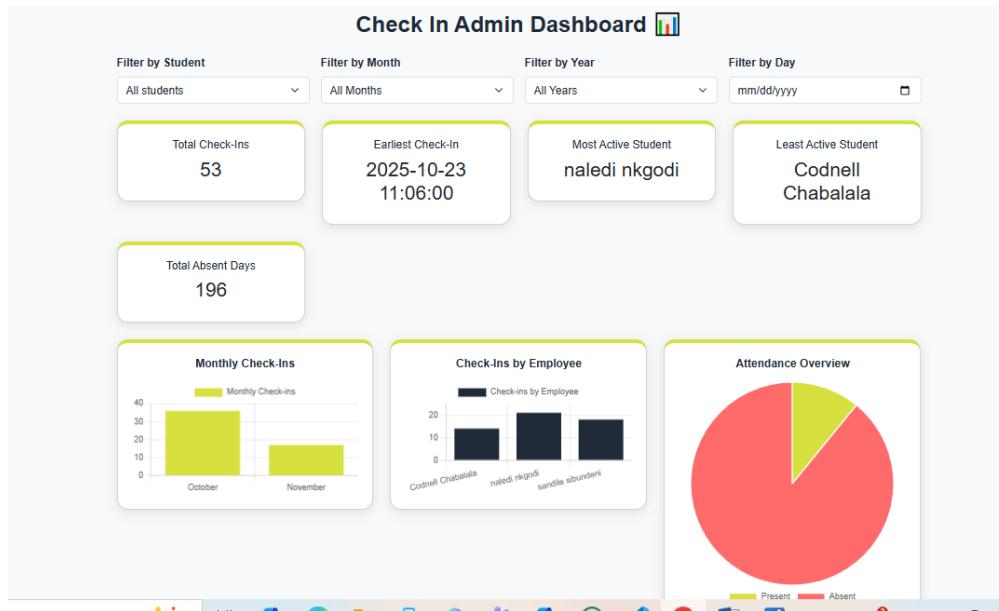


Figure 9:mentor dashboard

### 3.7.6 Two factor verification page

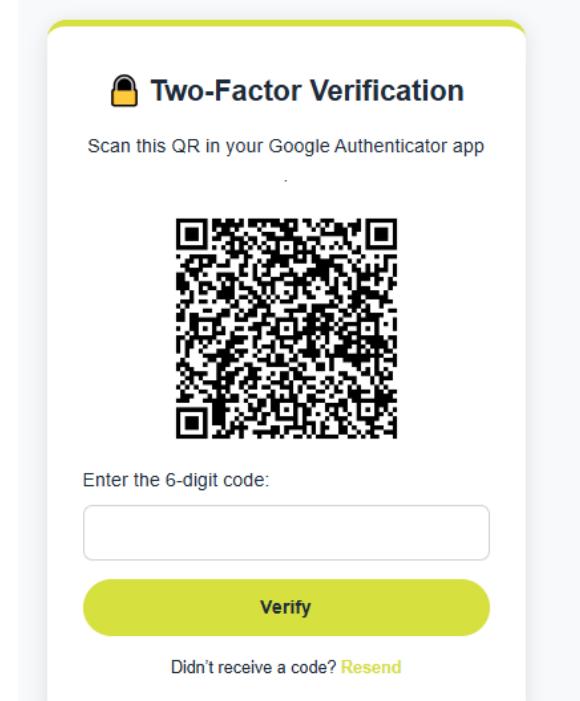


Figure 10:2FA Verification page

### 3.7.7 Password Reset Page

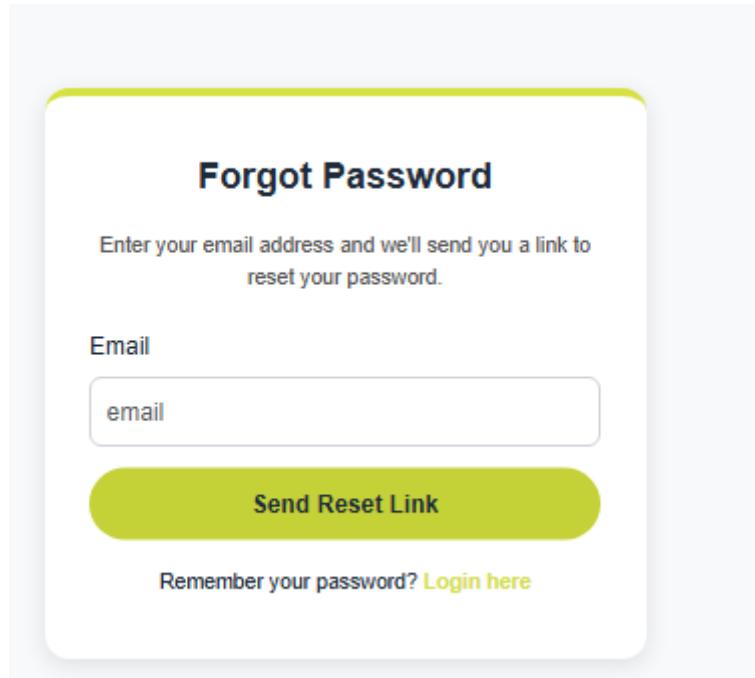
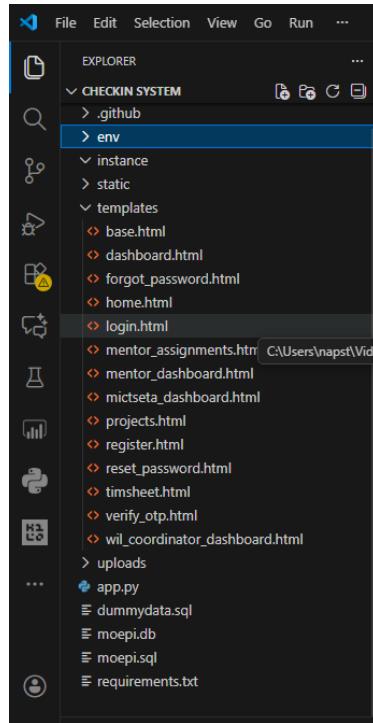


Figure 11:Password Reset Page

## 3.8 BACKEND Screenshots

### **3.8.1 FOLDER**



*Figure 12:Check in system folder*

### 3.8.2 PYTHON

```
app.py x E msgapi o ui_coordinator_dashboard.html o mentor_assignments.html o timesheets_dashboard.html
app.py > dashboard
1 from flask import Flask, render_template, request, redirect, url_for, flash, jsonify, send_from_directory
2 from datetime import datetime, timedelta
3 from flask import session
4 from flask_sqlalchemy import SQLAlchemy
5 from flask_login import LoginManager, login_user, logout_user, login_required, current_user, UserMixin
6 from werkzeug.security import generate_password_hash, check_password_hash
7 from werkzeug.utils import secure_filename
8 from flask_mail import Mail, Message
9 from itsdangerous import URLSafeTimedSerializer
10 import os
11 import pyotp
12 import gcode
13 import io
14 import base64
15 from sqlalchemy import func
16 from flask import send_from_directory, abort
17 import os
18 from flask import send_file
19
20
21 BASE_DIR = os.path.dirname(os.path.abspath(__file__))
22
23 app = Flask(__name__)
24 app.config['SECRET_KEY'] = 'replace this with a strong secret key'
25 app.config['SQLALCHEMY_DATABASE_URI'] = 'sqlite:///+' + os.path.join(BASE_DIR, 'insepi.db')
26 app.config['SQLALCHEMY_TRACK_MODIFICATIONS'] = False
27
28 # upload settings
29 app.config['UPLOAD_FOLDER'] = os.path.join(BASE_DIR, 'static', 'uploads', 'timesheets')
30 app.config['MAX_CONTENT_LENGTH'] = 10 * 1024 * 1024 # 10 MB
31 os.makedirs(app.config['UPLOAD_FOLDER'], exist_ok=True)
32
33 # ----- Run -----#
34 if __name__ == '__main__':
35     app.run(debug=True)
```

*Figure 13: Python file*

### 3.8.3 Database

```
app.py      moepi.sql  wil_coordinator_dashboard.html  mentor_assignments.html  mictseta_dashboard.html
moepi.sql
CREATE TABLE user (
    id INTEGER NOT NULL,
    fullname VARCHAR(150) NOT NULL,
    email VARCHAR(150) NOT NULL,
    password_hash VARCHAR(256) NOT NULL,
    is_admin BOOLEAN,
    created_at DATETIME,
    role VARCHAR(50) NOT NULL,
    organization VARCHAR(100) NOT NULL,
    student_number VARCHAR(50),
    department VARCHAR(100),
    institution_type VARCHAR(100),
    mentor_id INTEGER,
    two_factor_secret VARCHAR(16),
    PRIMARY KEY (id),
    UNIQUE (email),
    FOREIGN KEY(mentor_id) REFERENCES user (id)
);
INSERT INTO user VALUES(1,'System Administrator','support@tekete.co.za','pbkdf2:sha256:600000$HNLjQABto9z7N');
INSERT INTO user VALUES(2,'mr mbasa','221648380@edu.vut.ac.za','pbkdf2:sha256:600000$FUXsO0ZqkdqS88D$a4e2');
INSERT INTO user VALUES(3,'L ROOS','coordinator@vut.ac.za','pbkdf2:sha256:600000$PXEduD1zjQeGY4yo$6e3a4111a');
INSERT INTO user VALUES(4,'carlos','carlos@tut.ac.za','pbkdf2:sha256:600000$nnG38K9yCsAGnwbA$4a0312859f95a4');
INSERT INTO user VALUES(5,'tshidiso masoeu','tshidiso.masoeu@tekete.co.za','pbkdf2:sha256:600000$FqQQ6BpEcF');
INSERT INTO user VALUES(6,'sinethemba khobeni','sinethemba.khobeni@tekete.co.za','pbkdf2:sha256:600000$tpuU');
INSERT INTO user VALUES(7,'Codnell Chabalala','codnell.chabalala@tekete.co.za','pbkdf2:sha256:600000$6c3FFN');
INSERT INTO user VALUES(8,'naledi nkgori','naledi.nkgodi@tekete.co.za','pbkdf2:sha256:600000$w69UuzgfKbMWP');
INSERT INTO user VALUES(9,'sandile sibundeni','sandile.sibundeni@tekete.co.za','pbkdf2:sha256:600000$QCxu0');
INSERT INTO user VALUES(10,'thando nkuna','thando.nkuna@tekete.co.za','pbkdf2:sha256:600000$dcK11f3qdjAEIf');
INSERT INTO user VALUES(11,'fortune mathebula','fortune.mathebula@tekete.co.za','pbkdf2:sha256:600000$qcaPY');
INSERT INTO user VALUES(12,'neria Rampai','neria.rampai@tekete.co.za','pbkdf2:sha256:600000$0EWHezjICaQ9AA42');
INSERT INTO user VALUES(13,'shudufhadzo matsila','shudufhadzo.matsila@tekete.co.za','pbkdf2:sha256:600000$k');
INSERT INTO user VALUES(14,'masego molefe','masego.molefe@tekete.co.za','pbkdf2:sha256:600000$QpZwrVtqdLcy');
```

Figure 14:Database

### 3.8.4 Requirements

```
app.py      requirements.txt
requirements.txt
bcrypt==5.0.0
blinker==1.9.0
click==8.3.0
colorama==0.4.6
Faker==37.12.0
Flask==2.3.2
Flask-Bcrypt==1.0.1
Flask-Login==0.6.2
Flask-Mail==0.10.0
Flask-SQLAlchemy==3.0.3
greenlet==3.2.4
gunicorn==23.0.0
itsdangerous==2.2.0
Jinja2==3.1.6
MarkupSafe==3.0.3
numpy==2.3.4
packaging==25.0
pandas==2.3.3
python-dateutil==2.9.0.post0
pytz==2025.2
six==1.17.0
SQLAlchemy==2.0.44
typing_extensions==4.15.0
tzdata==2025.2
Werkzeug==2.3.7
```

Figure 15:Requirements

### **3.9 Summary**

This chapter presented the methodology used in the development of the Moepi Check-In System. It explained the research design, data collection and analysis methods, system development processes, and the technologies used to create the platform. The chapter also illustrated how data is presented through dashboards and tables, supporting efficient monitoring of WIL student activities. The next chapter will present conclusion and recommendations.

## **Chapter 4: Findings**

### **4.1 Introduction**

This chapter presents the findings of the WIL Check-In System project. It highlights what has been achieved through the development and implementation of the system, evaluates its impact, and provides recommendations for improving WIL monitoring. The chapter also identifies potential areas for further research.

### **4.2 Summary of main findings**

The project successfully developed a secure, web-based Check-In System for monitoring students during Work-Integrated Learning (WIL) programs. The system allows students to record daily attendance, upload logbooks, and submit monthly timesheets digitally. Mentors, WIL coordinators, and SETA administrators can monitor these activities in real time through interactive dashboards.

The system improves data accuracy and security by storing all records in a MySQL database, reducing errors and the risk of lost information. Its user-friendly interface ensures that all users, whether on-site or remote, can easily navigate and use the platform without difficulty. This makes daily monitoring and reporting more efficient than traditional manual methods.

Overall, the Check-In System enhances efficiency, accountability, and reliability in WIL programs. It reduces administrative workload, ensures accurate records, and helps institutions make informed decisions regarding student progress, supervision, and compliance. By integrating digital attendance, logbook submission, and timesheet management into one platform, the system improves the overall quality of workplace learning.

### **4.3 Recommendations**

Based on the findings of this study, it is recommended that the Check-In System be fully adopted across all departments to replace traditional paper-based attendance tracking and manual reporting. To ensure proper use and maximize the benefits of the system, training sessions should be provided for students, mentors, and administrators. Regular system updates and maintenance are also important to maintain security, efficiency, and scalability as more users access the platform. Additionally, a feedback mechanism should be established to allow users to suggest

improvements and report any issues they encounter. Finally, the institution should consider integrating the Check-In System with other existing software to create a unified platform for student management, further enhancing efficiency and ease of monitoring.

#### **4.4. Further Research**

- Developing a mobile application version of the Check-In System for easier access on smartphones and tablets.
- Integrating advanced analytics to identify trends in student performance and predict areas of improvement.
- Investigating AI-based verification of logbooks and timesheets to automate evaluation.
- Exploring the integration of biometric attendance systems to enhance security and accuracy.
- Studying the impact of real-time notifications and alerts on student engagement and compliance during WIL programs.

## REFERENCES

- Adeyemi, T., 2020. Challenges in implementing digital attendance monitoring systems in educational institutions. Lagos: University Press.
- Alavi, M. & Leidner, D.E., 2001. Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly*, 25(1), pp.107–136.
- Bates, A.W., 2019. Teaching in a digital age: Guidelines for designing teaching and learning. 2nd ed. Vancouver: Tony Bates Associates Ltd.
- Brown, J., 2021. Web-based learning and monitoring platforms: An overview of efficiency and adoption challenges. *Journal of Educational Technology*, 18(3), pp.45–59.
- Nkosi, P., 2019. Manual attendance tracking in Work-Integrated Learning: Issues and solutions. Johannesburg: EduTech Publishers.
- Patel, R. & Kumar, S., 2021. Digital solutions for student monitoring: A study of online check-in systems. Cape Town: Academic Press.
- Rogers, E.M., 2003. Diffusion of innovations. 5th ed. New York: Free Press.
- Smith, J. & Jones, L., 2020. Attendance and accountability in Work-Integrated Learning programs. London: Routledge.
- Venkatesh, V., Morris, M.G., Davis, G.B. & Davis, F.D., 2003. User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), pp.425–478.
- Adepoju, T., 2018. Security challenges in web-based student management systems. *International Journal of Computer Applications*, 182(25), pp.1–7.
- Johnson, L., Becker, S.A., Estrada, V. & Freeman, A., 2014. NMC Horizon Report: 2014 Higher Education Edition. Austin, Texas: The New Media Consortium.
- Kumar, R., 2016. Research methodology: A step-by-step guide for beginners. 4th ed. London: SAGE Publications.