Pradnya Niketan Education Society, Pune

**NAGESH KARAJAGI *ORCHID* COLLEGE OF ENGINEERING & TECHNOLOGY, SOLAPUR**

**DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

# Final year Project-I Work Diary

## Academic Year: 2025-2026

**Project Title: MatriCare AI – AI Based Prediction of Labour related Complications**

**Project Group No: 11**

**Project Group Members:**

| Sr No. | Name | Roll No. | Exam Seat No. |
|---|---|---|---|
| 1 | Aditya Kamble | 49 | |
| 2 | Sakshi Bhumkar | 64 | |
| 3 | Varsha Devdas | 73 | |
| 4 | Zaid Sutar | 38 | |

**Project Guide: Prof. G. N. Chanderki**

# Project Schedule

| Month | Week | Project Activity |
|---|---|---|
| August | Week 4 | Formation of project group |
| September | Week 1 | Finalization of project idea |
| | Week 2 | Finalization of project title |
| | Week 3 | Study of existing systems |
| | Week 4 | Literature survey |
| October | Week 1 | Literature Review |
| | Week 2 | Project Abstract |
| | Week 3 | System Architecture |
| | Week 4 | Algorithm |
| November | Week 1 | Project Implementation |
| | Week 2 | Workflow Diagram, Use Case |
| | Week 3 | Report writing, Project Work Diary |
| | Week 4 | Report Submission |

# Project Progress Sheet

## Semester – I

**Activity week:** August Week 4 From 25/08/2025 to 30/08/2025

Activity according to schedule:

1. Formation of project group

Project group of four members was successfully formed. Responsibilities were discussed and each member agreed on contributing to technical, research, and documentation activities.

Date: 30/08/2025 Guide - Prof. G. N. Chanderki

**Activity week:** September Week1 From 01/09/2025 to 06/09/2025

Activity according to schedule:

1. Finalization of project idea

Work done:

To identify a real-time societal problem, the team discussed multiple domains such as agriculture, education, security, and healthcare. After recognizing the high maternal mortality rates in India, the team finalized the idea of building an AI-based maternal care monitoring and prediction system.

Date: 06/09/2025 Guide - Prof. G. N. Chanderki

**Activity week:** September Week2 From 08/09/2025 to 13/09/2025

Activity according to schedule:

1. Finalization of project title

Based on the identified problem statement and feedback from faculty, the project title was finalized as **"MatriCare AI – AI Based Prediction of Labour-related Complications."**
The title reflects prediction, automation, and intelligent assistance for labour monitoring.

Date: 13/09/2025 Guide - Prof. G. N. Chanderki

**Activity week:** September Week3 From 15/09/2025 to 20/09/2025

Activity according to schedule:

1. Study of existing systems

Work done:

Visited various hospitals and clinics to understand current labour monitoring practices.
Key findings:

- Most hospitals still rely on partially manual recording of vitals.
- No automated system combining maternal + fetal parameters.
- No decision-support for nurses during critical labour stages.
  These insights showed a strong need for an AI-driven solution.

Date: 20/09/2025 Guide - Prof. G. N. Chanderki

**Activity week:** September Week4 From 22/09/2025 to 27/09/2025

Activity according to schedule:

1. Literature survey

Work done

Examined research papers on maternal health, AI prediction models, vital-sign monitoring, and fetal well-being analysis. Identified essential parameters such as BP, HR, SpO2, FHR, TOCO, etc.

Date: 27/09/2025 Guide - Prof. G. N. Chanderki

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**Activity week:** October Week 1 From 29/09/2025 to 04/10/2025

Activity according to schedule:

1. Literature Review

Work done:

Organized research findings and created a detailed literature review highlighting gaps in current maternal monitoring systems and the need for automated ML-based prediction methods.

Date: 4/10/2025 Guide - Prof. G. N. Chanderki

**Activity week:** October Week 2 From 06/10/2025 to 11/10/2025

Activity according to schedule:

1. Project Abstract

Work done

Drafted a detailed abstract highlighting the need for continuous maternal monitoring, the ML classification approach, integration of LLM for recommendations, and benefits of real-time decision support in labour wards.

Date: 11/10/2025 Guide - Prof. G. N. Chanderki

**Activity week:** October Week 3 From 13/10/2025 to 18/10/2025

Activity according to schedule:

1. Project Analysis
Work done:

Analyzed important functional and non-functional requirements.
Key decisions made:

- Use 8 core physiological parameters
- Develop ML model with synthetic + reference dataset
- Add Wi-Fi based data transmission
- Include nurse guidance via LLM (Llama Index)
  Also identified modular structure for interface, ML engine, and recommendation engine.

Date: 18/10/2025 Guide - Prof. G. N. Chanderki

**Activity week:** October Week 4 From 20/10/2025 to 25/10/2025

Activity according to schedule:

1. System Architecture

Work done

Designed system architecture describing sensor input layer, data acquisition module, ML prediction pipeline, LLM-based nurse recommendation, and user interface workflow.

Date: 25/10/2025 Guide - Prof. G. N. Chanderki

**Activity week:** November Week 1 From 27/10/2025 to 01/11/2025

Activity according to schedule:

1. Algorithm

Created clear algorithmic steps for:

- Sensor data simulation
- Preprocessing
- ML model training
- Prediction pipeline
- LLM output generation
  Algorithms were refined after testing sample data.

Date: 01/11/2025 Guide - Prof. G. N. Chanderki

**Activity week:** November Week 2 From 03/11/2025 to 08/11/2025

Activity according to schedule:

1. Class Case, Use Case, Activity, Sequence, DFD, UML Diagrams

Work done

All required diagrams were created including Use Case Diagram, System Workflow Diagram tailored for maternal monitoring and AI prediction.

Date: 08/11/2022 Guide - Prof. G. N. Chanderki

**Activity week:** December Week 3 From 10/11/2025 to 15/11/2025

Activity according to schedule:

1. Report writing

2. Work Diary

Work done:

Compiled project report including introduction, literature review, problem identification, methodology, architecture, and diagrams. Work diary entries were prepared week-wise.

Date: 15/11/2025 Guide - Prof. G. N. Chanderki

**Activity week:** November Week 4 From 17/11/2025 to 22/11/2025

Activity according to schedule:

Report Submission

Work done:

Completed final formatting, proofreading, and organized all components. Submitted the complete Project-I report and the Work Diary as per guidelines.

Date: 22/11/2025 Guide - Prof. G. N. Chanderki

**Project Coordinator** **HOD**