**Smart Water Management Forecast**

This proposal describes a six-week, 30-day business study project to create an automatic monitoring and predictive maintenance system for water pump systems.

The project uses machine learning, real-time monitoring, and data consolidation to optimize pump performance, eliminate human error, and minimize downtime through proactive maintenance.

**Project Overview by Week**

The six-week project is organized into phases with a focus on requirements definition, Agile planning, system integration, deployment readiness, documentation completion, and project closure.

Week, Focus Area, Key Objectives are below

Week 1 (Days 1–5): -

Problem Definition & Use Cases Defining the business problem, understanding stakeholder requirements, identifying data sources, ensuring regulatory compliance, and documenting initial use cases (UC-01 to UC-03).

Week 2 (Days 6–10): -

Agile Planning & Requirements Management embracing Agile practices, business value-based requirement prioritization, requirement breakdown into user stories (UC-04), sprint planning (UC-06), and continuous stakeholder feedback loop setup (UC-07).

Week 3 (Days 11–15): -

System Integration & Functional Requirements determining workflows for data processing, predictive model integration, notification and alert mechanisms, and user access control. This stage sets up functional use cases (UC-08 to UC-11) for system functionality.

Week 4 (Days 16–20): -

Deployment Preparation documenting critical processes for system readiness: version control (UC-12), testing and validation (UC-13), and deployment requirements (UC-14). This provides a systematic, trustworthy, and traceable deployment.

Week 5 (Days 21–25): -

Review & Refinement finalizing the documentation by preview and stakeholder validation, including feedback, conducting quality assurance checks, and getting the materials ready for an orderly handoff.

Week 6 (Days 26–30): -

Handoff & Closure Delivering the completed documents to development and operations staff, training the teams, offering continued support, carrying out a final document audit, and conducting a project closure meeting to record lessons learned.

**Project Goal and Benefit**

The main aim of the project is automating the predictive maintenance and monitoring of water pump systems10. The system should be automated to facilitate proactive maintenance, which avoids failures, reduces downtime, and tackles inefficiencies, errors, and costs of manual monitoring.

Key Use Cases Described

The strategy specifies particular use cases (UCs) to inform the development:

• Requirements & Data: UC-01 (Identify Stakeholder Requirements), UC-02 (Define Data Collection Requirements), and UC-03 (Map Compliance & Security Requirements).

• Agile Management: UC-04 (Translate Requirements into User Stories), UC-05 (Prioritize User Stories for Backlog), UC-06 (Facilitate Sprint Planning Sessions), and UC-07 (Capture and Manage Stakeholder Feedback).

• Functional Design: UC-08 (Specify Data Processing & Validation Requirements), UC-09 (Document Predictive Modelling Requirements), UC-10 (Specify Alert Management Requirements), and UC-11 (Determine User Role & Permission Requirements)

• Deployment: UC-12 (Document Version Control Procedures), UC-13 (Specify Testing & Validation Requirements), and UC-14 (Document Deployment Requirements & Guidelines).