Project Management Plan

TDDC88 Programutvecklingsmetodik

Company 3
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1 Document Change History

Note: This change history table was generated by Autoleaf AI under the supervision of the Technical Writer. Only the most significant changes are highlighted, check the readme for more detailed information.

Ver.	Date	Modified Areas	Changed By	Description of Changes
2.1	2024-10-18	Project Overview, Structure	Project Manager, P&S Manager, R&D Manager, Technical Writer	Adjusts document structure, expands Project Overview with visuals and information, incorporates initial content for other sections.
2.0	2024-10-04	Project Overview, Structure	Project Manager, P&S Manager, R&D Manager, Technical Writer	Expands Project Overview with detailed information, restructures document to separate sections into individual files.
1.1	2024-10-03	Project Overview	Project Manager, P&S Manager, R&D Manager, Technical Writer	Adds initial draft of Project Overview section.
1.0	2024-09-23	Entire Document	Project Manager, P&S Manager, R&D Manager, Technical Writer	Establishes initial structure and content of the Project Management Plan.

Contents

Preface

This document serves...

2 Project Description

2.1 Background

As part of the TDDC88 Software Engineering Theory and Practice course at Linköping University, Company 3 has been tasked with developing a software solution for Axis Communications AB. This project aims to create PanoraGuard; a system for interpreting and analyzing streamed or recorded video content, with a specific focus on security surveillance.

2.2 Scope

The project encompasses the development of a functional prototype that demonstrates advanced capabilities in video analysis for security surveillance. Our system, PanoraGuard, will integrate with Axis camera systems to provide real-time object recognition and motion detection. It will process video data to identify potential security threats, alerting operators to unauthorized access in specified areas. The scope includes developing a user-friendly interface for monitoring and control, allowing security personnel to make informed decisions quickly. While our focus is on software development, we will ensure seamless integration with Axis hardware. The project does not include hardware development or large-scale deployment but will provide a robust foundation for future scalability.

2.3 Purpose

The primary purpose of this project is twofold:

1. To create a demonstrable product of value for Axis Communications that addresses their real-world needs in video analytics for security applications.
2. To provide Company 3 members with practical experience in large-scale software engineering, from initial concept to final delivery, mirroring real-world development processes.

2.4 Objectives (SMART Goals)

1. **Specific:** Develop a working prototype of PanoraGuard capable of detecting and alerting unauthorized access in specified areas by the end of Iteration 3 (November 22, 2024).
2. **Measurable:** Implement core features including motion detection, object recognition, and an alert system with a 95% accuracy rate by the end of Iteration 2 (November 8, 2024).
3. **Agreed:** Achieve full alignment with Axis Communications' requirements and TDDC88 course objectives, as confirmed in the Tollgate meeting on September 26, 2024.
4. **Realistic:** Complete development within the 160-hour active work time per team member constraint, utilizing our cross-functional team structure for efficient resource allocation and task completion.
5. **Timely:** Deliver a fully functional PanoraGuard prototype, complete with user interface and integration capabilities, for presentation at VSSE'24 on December 12, 2024.

Our team is committed to creating a system that not only meets the technical requirements but also provides an intuitive, seamless user experience for security operators. By focusing on rapid alert systems, clear visual interfaces, and robust backend processing, PanoraGuard aims to set a new standard in video-based security surveillance.

3 Stakeholders

3.1 Customer: Axis Communications AB

Axis Communications AB, the primary stakeholder and customer, is a leader in network video solutions. They provide the hardware infrastructure and industry expertise that our software solution will complement. Axis requires a video analysis system for security surveillance that integrates with their camera systems. Key requirements include real-time threat detection, alert mechanisms, and an interface for security operators, all compliant with industry standards and data protection regulations.

3.2 Development Team: Company 3

Company 3 consists of students from the TDDC88 course, organized into functional groups and cross-functional teams for efficient development. The functional group structure includes:

Management: Overseeing project timeline, resource allocation, and communication.

Architecture: Designing system structure and integration points.

Development: Creating user interfaces and implementing core functionalities.

Quality Assurance and Testing: Ensuring software reliability and performance.

UX/UI Design: Optimizing user experience for security personnel.

Analysis: Evaluating system performance and user needs.

Deployment: Managing system integration and rollout.

The company is organized into four cross-functional units: ACAP, LAN SERVER, CLIENT, and EXTERNAL. Each unit combines various roles from the functional structure to address specific aspects of the project, promoting collaboration and efficient problem-solving. The corss-functional teams can be shown in the figure below.

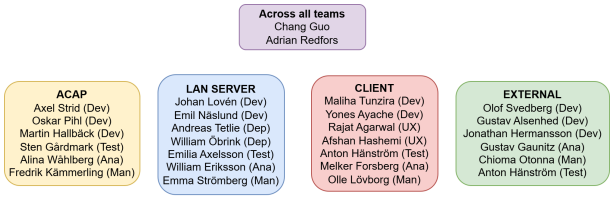

Figure 1: Cross-functional teams for Iteration 1 & 2

3.3 End Users

The primary end users require efficient alert systems, clear data visualizations, and intuitive controls for managing security incidents. These users of the system will be security professionals, including:

- Security operators monitoring video feeds and responding to alerts
- Security managers overseeing operations and accessing analytical data
- System administrators managing access and configurations

4 Project Constraints

4.1 Personnel

The project is constrained by a 160-hour limit per team member. This necessitates careful planning and resource management throughout the project lifecycle. Additionally, team members have other academic commitments inherent to being students, which must be respected and managed alongside project work. This differs from a traditional work environment and requires flexible scheduling and efficient time utilization.

4.2 Timeline

The timeline of the project requires management of development cycles and regular progress reviews to ensure in-time delivery of project milestones. The project is bound by the following key dates:

Event	**Date**
Project Start	September 4, 2024
Tollgate Meeting	September 26, 2024
Iteration 1 End	October 11, 2024
Iteration 2 End	November 8, 2024
Iteration 3 End	November 22, 2024
Iteration 4 End	December 6, 2024
VSSE (Final Presentation)	December 12, 2024

4.3 Resources

The project operates without a dedicated budget, which significantly impacts available resources. Key constraints include:

- Reliance on virtual environments for large-scale testing scenarios
- No funds for third-party software licenses, AI models, or cloud computing resources
- Time constraints for students in our company
- Time limitations for learning new technologies or frameworks

To address these constraints, the team will focus on open-source tools, efficient resource utilization, and prioritization of core functionalities. Open communication with Axis Communications and the course adminstration will be maintained for any critical support or resources needed for project success.

5 Deliverables

The project will result in both product and documentation deliverables, each crucial to the success of the security surveillance solution.

5.1 Product Deliverables

The core of our solution will comprise of several connected components:

Video Analysis Engine: For processing video feeds and detecting anomalies.

Alert Management System: For generating and managing security alerts.

Operator Interface: A dashboard for security personnel to monitor and respond to alerts.

Camera Integration Module: For integration with Axis camera systems.

5.2 Documentation Deliverables

To support our product and ensure its proper implementation and use, we will produce the following key documents:

Document	Description
Architecture Notebook	Overview of system architecture and design rationale
Project Backlog	Listing of functional and non-functional system requirements
Test Plan	Outline of testing strategies and procedures
Software Quality Assurance Plan	Documentation of quality standards and processes
Customer Requirements Specification	Documentation of customer requirements and expectations

6 Project Schedule

Our project timeline is structured to ensure steady progress and regular delivery of value. Work is divided into four key iterations.

6.1 Iteration Plan

Presented below are the dates and focus areas of each iteration:

Iteration	Dates	Focus
0 (Tollgate)	Sept 13 - Sept 26	Company Overview, Requirements Specification, Architectural Description, Mileston
1	Sept 30 - Oct 11	System Integration, Database Setup, Initial Client-Facing Website Development, SQ
2	Oct 14 - Nov 8	Alarm Management, Scheduling System Development, Continued Client-Facing Web
3	Nov 11 - Nov 22	Continued Scheduling System Development, Alarm Confidence Level, Multi-Camera
4	NOv 22 - Dec 6	Data Compliance & GDPR Management, Scalability Enhancement, Final Presentati

6.2 Key Milestones

Our project timeline contains the following key events:

Milestone	Date
Project Kickoff	September 4, 2024
Tollgate Meeting	September 26, 2024
Iteration 1 End	October 11, 2024
Iteration 2 End	November 8, 2024
Iteration 3 End	November 22, 2024
VSSE (Final Presentation)	December 12, 2024

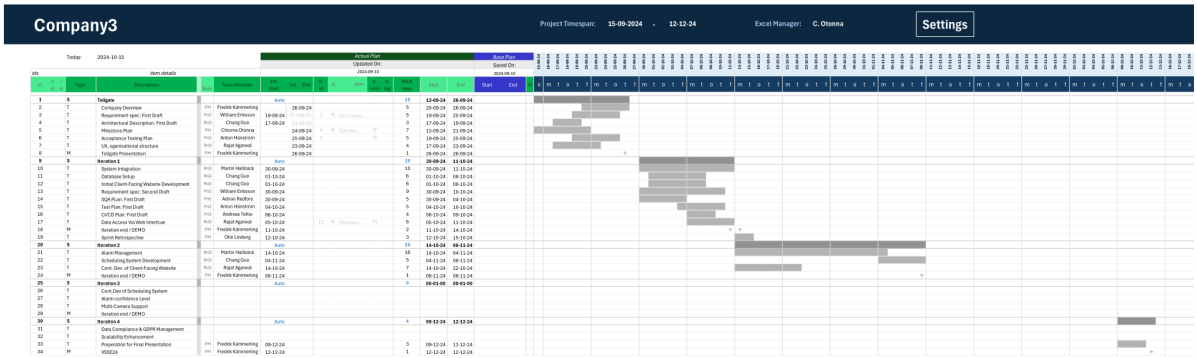

Figure 2: Project Milestone Plan and Gantt Chart

7 Quality Objectives

Quality is at the heart of our development process, encompassing both the product we deliver and the methods we employ to create it.

7.1 Product Quality

Our security surveillance solution aims to meet the following quality benchmarks:

- Achieve high system uptime during operational hours.
- Generate alerts within a specified time frame of incident detection.
- Maintain a low false positive rate for security alerts.
- Design an intuitive interface for efficient user interaction.
- Support multiple simultaneous camera feeds.

7.2 Process Quality

To ensure an effective development process, we commit to:

Adhering to iterative development methodologies, with regular reviews and retrospectives to continuously improve our processes. Our documentation will be updated at the conclusion of each iteration to reflect the latest project state.

Implementing a comprehensive Quality Assurance plan that is iterative in nature, with a focus on continuous improvement. This plan spans across both the Research and Development (RnD) and Product

Table 1: Quality Assurance Roles and Responsibilities

Role	**Responsibility**
Product and Sales Line Manager	Overall QA plan
Technical Writer	Document structure and version control
Testing Lead	Testing strategy and bug tracking
Analysis Lead	Traceability
Deployment Lead	Continuous integration and delivery
Process Manager	Internal quality practices and change management
Architecture	Future development and operations considerations

and Sales (PnS) departments, covering all iterations. Key roles and responsibilities are outlined in Table 1.

Utilizing a Continuous Integration and Continuous Delivery (CI/CD) pipeline to automate the build, test, and deployment processes. Our CI/CD pipeline, managed through GitLab CI, includes automated testing, Docker image building, and deployment to a Kubernetes cluster hosted in Azure. This approach ensures consistent code quality, frequent integration, and reliable deployments.

Maintaining code quality through review processes before merging major features into our main codebase. We aim for comprehensive automated testing coverage for all new code, ensuring reliability.

Soliciting regular stakeholder feedback, with dedicated sessions throughout the project. This approach ensures that we remain aligned with stakeholder expectations and can adapt to changing requirements or priorities.

Conducting sprint retrospectives after each iteration to evaluate our practices and processes, as outlined in our quality management plan. These retrospectives will cover areas such as document version handling, internal test cases, code refactoring, methods of communication, and the retrospective process itself.

Implementing a feedback loop system where all employees are encouraged to provide continuous feedback and recommendations on quality assurance practices to their Lead, Line Manager, or the Project Manager.

Through these quality objectives and processes, we aim to deliver a security surveillance solution that maintains high standards of quality throughout its development lifecycle.

7.3 Work Activities

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7.4 Time Allocation

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8 Project Assessment and Control

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8.1 Scope Change Control Plan

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8.2 Schedule Control Plan

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8.3 Budget Control Plan

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8.3.1 General-purpose Dissemination

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9 Supporting Process Plans

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9.1 Risk Management

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9.2 Cost Management

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