

# IBM AI AR techdoc

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# 1 Introduction

This document provides a detailed specification for the proposed software project. It outlines the goals, requirements, and constraints that are necessary for successful implementation.

## 2 Problem Statement

## 3 Project Overview

### 3.1 Purpose

Many developers face challenges while reading and understanding technical documentation. This project aims to create an AI-powered mobile application which, supported by AR technology, will enhance the user experience by providing interactive and immersive documentation. Powered by IBM Watson/Grantie, the app will offer several features to assist developers in navigating and comprehending complex technical documents, including text recognition, interactive AR overlays, chatbot assistance and more.

### 3.2 Objectives within the scope

The primary objectives of this project are to:

1. Implement AR diagram augmentation
  - Detect and track diagrams in printed and digital forms.
  - Overlay interactive elements on diagrams to provide additional context and explanations.
2. Integrate an AI assistant
  - Employ IBM Watson/Granite to interpret the scanned documentation text and answer user queries.
  - Support natural language questions such as "What is the purpose of this diagram?" or "Explain this concept in simpler terms."
3. Preserve accessibility and compliance
  - Keep the core document unchanged and externalize enhancements through AR overlays to comply with accessibility and legal requirements.
4. Develop a functional mobile prototype
  - Deliver a working mobile application prototype that demonstrates the key features and functionalities.
  - Conduct user testing to gather feedback and refine the application.
  - Provide a short demonstration.

### 3.3 Boundaries and Out-of-Scope Elements

To keep the project achievable within the given timeframe, the following elements are considered out of scope:

- Full production deployment or enterprise-level integration.
- Hardware-specific AR is excluded; the focus is on mobile devices.
- Cross-platform optimization beyond the primary target platform (e.g., iOS or Android).

### 3.4 Expected Deliverables

- A prototype mobile application demonstrating real-time recognition and overlay of technical documentation.
- Integrated AI assistant interface capable of answering user queries based on the documentation content.
- A comprehensive project report detailing the design, implementation, testing processes and evaluation results.
- VIVA presentation and demonstration.

### 3.5 Target Outcomes

- Enhanced user experience for developers interacting with technical documentation.
- Improved comprehension of complex technical concepts through interactive AR elements and AI assistance.
- A foundation for future development and potential commercialization of the application.

## 4 Requirements

Each requirement will be described in the format RnC/D, where n is the requirement number and C or D indicates whether the requirement is customer (C) or developer (D) oriented. For example, R1C refers to the first customer requirement, while R2D refers to the second developer requirement. Each requirement will be detailed with its description, priority, verification method and traceability.

### 4.1 Functional Requirements

List the key functionalities the software system must support. Provide clear and concise descriptions of features and interactions.

1. **Augmented Reality System**

### 4.2 Non-Functional Requirements

Outline performance, usability, reliability, and other quality attributes expected from the system.

## 5 System Architecture

Provide a high-level overview of the system architecture. Include diagrams where appropriate to illustrate the system components and their interactions.

### 5.1 Component Diagram

### 5.2 Frontend Design

### 5.3 Backend Design

### 5.4 Technology Stack

List the technologies, programming languages, frameworks, and tools that will be used in the project.

## **6 Development Plan and Project Philosophy**

### **6.1 Methodology**

Describe the development methodology (e.g., Agile, Waterfall) that will be followed during the project lifecycle.

The project will follow the Scrum Agile methodology, which e

### **6.2 Time Management and Milestones**

Detail the project timeline with key milestones and deliverables.

### **6.3 Resource Management**

Outline the resources (e.g., personnel, equipment) required for the project and how they will be allocated.

### **6.4 Risk Management**

Identify potential risks and outline strategies for mitigating them.

## **7 Conclusion**

Summarize the key points of the specification document and outline next steps.