

## Functional Requirements

IEEE: 3.2 | ISO: Functionality

- Develop AI-powered solutions for real-time health data analysis and predictive analytics
- Design and deploy machine learning models for defect detection in PCB manufacturing
- Engineer IoT-based automation systems for real-time infrastructure monitoring
- Develop AI-driven real-time health monitoring systems for predictive analytics
- Build CNN-based AI models for ovarian cancer detection
- Implement Explainable AI for diagnostic transparency and transfer learning for enhanced generalization
- Develop Deep Learning models for automated PCB defect detection
- Integrate TensorFlow Serving and Flask API for scalable real-time deployment
- Build AI-driven real-time health monitoring systems using LSTMs and Django

## Non-Functional Requirements

IEEE: 3.3 | ISO: Usability

- Optimize model performance with hyperparameter tuning and data augmentation
- Achieve high accuracy rates (e.g., 88%, 90%)
- Ensure scalability and production efficiency
- Implement Explainable AI for diagnostic transparency
- Enhance image preprocessing with OpenCV-based augmentation
- Improve user health tracking and predictive analysis

## Business Rules

IEEE: N/A | ISO: N/A

- Use AWS and Oracle Cloud services for cloud deployment and operations
- Ensure security and networking in cloud services
- Implement cost management and IAM practices
- Use TensorFlow, Keras, and OpenCV for AI and ML development
- Utilize Django and MQTT for real-time analytics and IoT-based automation

## Constraints

IEEE: 3.4 | ISO: Portability

- Limited timeframe for project completion (e.g., March 2024 - April 2024)
- Need for scalable innovation and deployment
- Requirement for high-stakes business pitch events
- Need for digital initiatives and campus ambassador roles

## Assumptions

IEEE: 3.5 | ISO: Maintainability

- Availability of necessary resources and infrastructure for project development
- Access to necessary data and tools for AI and ML development
- Ability to work in a team and collaborate with others
- Ability to adapt to new technologies and tools
- Ability to communicate effectively and present ideas clearly