Functional Requirements

IEEE: 3.2 | ISO: Functionality

- Developed an AI-powered solution for real-time health data analysis
- Engineered an IoT-based automation system using Arduino and MQTT for real-time infrastructure monitoring
- Designed and deployed machine learning model using TensorFlow and Keras for defect detection in PCB manufacturing
- Developed a CNN-based AI model using TensorFlow, Keras, and OpenCV to classify ovarian cancer subtypes
- Implemented Explainable AI (SHAP, Grad-CAM) for diagnostic transparency and transfer learning for enhanced generalization
- Optimized model performance with hyperparameter tuning and data augmentation
- Engineered a Deep Learning model using YOLOv5, Faster R-CNN, and OpenCV for automated PCB defect detection
- Integrated TensorFlow Serving and Flask API for scalable real-time deployment in a manufacturing pipeline
- Built an AI-driven real-time health monitoring system using LSTMs, Django, and MQTT for predictive analytics
- Developed an API-driven health monitoring system for real-time biometric data analysis

Non-Functional Requirements

IEEE: 3.3 | ISO: Usability

- Achieved 88% accuracy in ovarian cancer detection
- Achieved 89% accuracy in PCB defect detection
- Achieved 90% accuracy in smart health monitoring
- Improved user health tracking and predictive analysis
- Enhanced image preprocessing with OpenCV-based augmentation
- Improved defect classification
- Optimized model performance with hyperparameter tuning and data augmentation

Business Rules

IEEE: N/A | ISO: N/A

- None

Constraints

IEEE: 3.4 | ISO: Portability

- None

Assumptions

IEEE: 3.5 | ISO: Maintainability

- None