AI-Assisted Router Setup

Degree programme: BSc in Computer Science
Specialisation: Computer Perception and Virtual Reality
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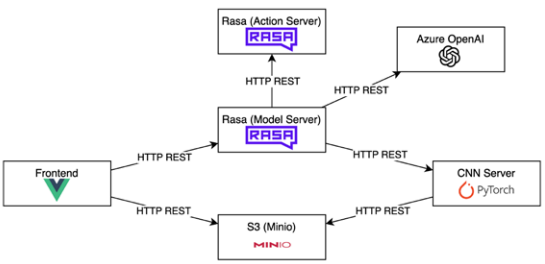
An AI-powered assistant was developed to support Swisscom customers during router and IP telephony setup. By combining image recognition, a conversational AI chatbot, and a structured knowledge base, the system simplifies installation and troubleshooting. User feedback confirmed improved usability and highlights the potential of multimodal AI in technical customer support.

Introduction

Setting up routers can be confusing, especially for non-technical users. Traditional help relies on technical jargon or assumes prior knowledge. Misconfigurations are common, increasing support costs and reducing user satisfaction.
This project introduces an AI-powered assistant that recognises router models from user-submitted images and provides setup support through a conversational interface. It combines a trained convolutional neural network (CNN), retrieval-augmented knowledge base, and a Rasa-based chatbot.

Implementation

A balanced dataset of router images was created from lab sessions and online sources. Data was augmented and used to train a CNN to classify router models under diverse conditions.
Router manuals and common question and answer pairs (FAQs) were chunked, embedded, and indexed in a vector store. Queries are matched to relevant knowledge, enabling targeted guidance without hardcoding.
The entire system is deployed in the cloud using Kubernetes. Components include a Vue/Quasar frontend, Rasa bot, image classifier, and a knowledge base integrated with a large language model.



Results

Users interact via image upload and multilingual chat. The system supports questions in English, French, German, and Italian. Testing with diverse users showed improved confidence and reduced time in resolving setup issues.
The system was evaluated with real users across two languages. Results showed increased user confidence and faster task completion.

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