SUMMARY

Development of A Neural Network-Based Classification System for Identifying Nutritional Profiles of Vegetables, Moch Rafli Putra Pratama, NIM E41212011, Tahun 2025, Jurusan Teknologi Informasi, Politeknik Negeri Jember, Nama dosen (Dosen Pembimbing).

The project successfully developed an advanced automated system for classifying various types of vegetables using a convolutional neural network (CNN). By analyzing images uploaded by users, the system extracts visual characteristics, such as RGB color values, and categorizes them into 36 different types of vegetables and fruits. This process ensures quick and accurate identification, significantly outperforming traditional manual classification methods prone to subjective errors. The integration of deep learning with robust image processing allows the system to handle complex classification tasks efficiently, even under varying conditions, making it ideal for food recognition applications. Additionally, the system's scalability enables potential integration with mobile and cloud platforms, broadening its applicability across industries like agriculture and supply chain management.

Key findings highlight the system's ability to automate real-time identification of vegetables, enhancing efficiency in food recognition contexts. Future research could focus on enhancing the model with larger datasets, improving image processing techniques, and optimizing real-time performance. Incorporating user feedback for continuous learning, personalized health recommendations, and integration with wearable devices could further improve its utility. Addressing security and privacy concerns, as well as ensuring cross-cultural usability, will be essential for expanding the system’s reach and effectiveness. Overall, while the system shows great promise in food classification and nutritional analysis, ongoing improvements can enhance its functionality and provide personalized health insights.