AI-Powered Sign Language Recognition Project

The AI-powered sign language recognition initiative is a high-impact project undertaken through a collaborative effort between Swinburne Sarawak, NeuonAI, the Sarawak Society for the Deaf (SSD). This project is a flagship Sustainable Development Goals (SDG) initiative aimed at revolutionizing inclusive education by bridging the communication gap between the deaf and non-deaf communities.

Building on a foundational prototype developed by previous final-year project (FYP) students, this project focuses on enhancing the practicality and effectiveness of the system. The current phase involves refining and expanding the existing modules with advanced features to create a robust two-way sign language communication tool.

Key Components of the Project

Front-End Development

1. **Mobile Application**: A tool enabling seamless communication through mobile devices.
2. **Web Application**: Enhancements to enable real-time communication features, improving accessibility and usability.

AI Engine Development

1. Collaboration with Dr Lee's HDR (Higher Degree Research) student to refine the AI core powering the sign-to-text and text-to-sign capabilities.
2. Incorporation of advanced features such as:
    - *Active learning concepts* in machine learning for enabling continuous model improvement with reliable new data inputs.
    - *Improved representation learning* using state-of-the-art autoregressive Deep Learning models.
3. **Required Skill Sets**: Proficiency in PyTorch, TensorFlow, and deep learning methodologies.

Back-End Development

1. **Security System**: Ensuring robust protection of user data and interactions.
2. **Database Management**: Optimizing the system for scalability and reliability.

This project has the potential to revolutionize communication for the deaf community while fostering inclusivity in education and society. It represents a significant step forward in leveraging AI for meaningful social impact.