Weekly Progress Report

Week 9

Background

This marks the first official week of hands-on work on our humanoid robot project. Before diving in, we held two brainstorming online meetings on **25/11** and **26/11** to discuss the project's scope, potential applications, and initial implementation strategies.

Highlights of the Brainstorming Meetings

- Explored diverse functionalities the humanoid robot could provide, including:
    - **Measuring human temperature** for health monitoring.
    - **Home security** applications to enhance safety.
    - **Obstacle avoidance** to ensure children's safety.
- Debated mechanical design options:
    - **Complete legs** for a more humanoid format and movement capabilities.
    - **Wheeled design** for simpler implementation and improved stability.
    - The decision remains under discussion, reflecting the diverse perspectives within the team.

This Week's Progress

1. **ESP32 Setup and Integration**
    - Acquired the ESP32 module, the backbone of our robot's functionality.
    - Successfully configured it to interact with other components.
2. **Face Detection Development**
    - Initial challenges with the camera were resolved through trial and error. The face detection feature is now operational and integrated with the system.
3. **Voice Recognition Feature**
    - Achieved smooth functionality for voice recognition. The system allows easy recording via a mobile phone mic, demonstrating high responsiveness.
4. **Mobile App Connection**
    - Integrated the ESP32 with a mobile application, enabling streamlined control and testing of features.

Challenges Encountered

- **Simultaneous Feature Operation**:
    - The system currently struggles to run face detection and voice recognition at the same time. This issue is our primary focus moving forward, as we aim to optimize concurrent processing.

What's Next

- Conduct research and tests to enable simultaneous operation of face detection and voice recognition.
- Finalize the mechanical design after further discussions and evaluations.
- Continue refining the existing features for greater efficiency and user experience.