Weekly Update 1 - [Oct 15-21]

Summary of Activities:
Since it's the first week, we focused more on researching, to build a clear understanding of the project's core topics. We put effort toward studying TinyML fundamentals, with emphasis on how machine learning models can be efficiently deployed on edge devices.

We explored **quantization** and **knowledge distillation** as key optimization methods for reducing model size and improving inference performance. Additionally, we researched the **Mamba architecture** to understand its relevance and potential integration with TinyML frameworks. We read multiple research papers related to these topics.[all links can be found on github]. We also gave attention to identifying suitable datasets.

Work done in this week:

- Understood core TinyML concepts and principles.
- Learning about tensorflow lite for MCUs
- Studied Mamba model architecture and optimization relevance.
- Explored BLE RSSI dataset structure and data generation methods. This helped us grasp how signal-based data can be used in edge applications.

Next Week's Plan:

- Begin setting up the development environment for TinyML experiments.
- Finalize dataset selection and preprocessing pipeline.
- Start implementing baseline models for comparison before optimization.