Hackathon Assignment: Implement Vosk as a Virtual Keyboard for Lomiri

Title: "Voice-to-Text Keyboard for Lomiri using Vosk"

Objective

Build a **virtual keyboard** for **Lomiri** (Ubuntu Touch's user interface) that uses **Vosk** for offline, real-time speech recognition. The keyboard should allow users to dictate text into any application, replacing or supplementing the traditional on-screen keyboard.

Background

Lomiri is the default user interface for Ubuntu Touch, a mobile operating system. While it supports touch input, a **voice-to-text keyboard** would enhance accessibility and usability, especially for users who prefer or require hands-free input.

Vosk is an offline speech recognition toolkit that is fast, accurate, and supports multiple languages —making it ideal for this use case.

Requirements

1. Core Features

- **Real-time Speech Recognition:** Convert spoken words into text as the user speaks.
- **Language Support:** Support at least **English** and one other language (e.g., Dutch, Spanish, German).
- **Integration with Lomiri:** Replace or augment the default on-screen keyboard with a voice input option.
- **User Interface:**
    - A microphone button to start/stop listening.
    - Visual feedback (e.g., waveform, transcription in real-time).
    - Option to insert recognized text into the active text field.
- **Offline Functionality:** All processing must happen on-device (no cloud dependency).

2. Technical Stack

- **Programming Language:** Python (for Vosk integration) + QML/JavaScript (for Lomiri UI).
- **Libraries/Tools:**
    - [Vosk](#) (for speech recognition).
    - Lomiri SDK / Ubuntu Touch APIs (for keyboard integration).
    - Qt/QML (for UI components).
- **Platform:** Ubuntu Touch (Lomiri).

3. Deliverables

- A functional **voice-to-text keyboard** that can be toggled in Lomiri.
- A **demo video** (max 2 minutes) showing the keyboard in action.
- **Documentation** (README) explaining:
  - How to install and run the keyboard.
  - How to add support for new languages.
  - Known limitations and future improvements.

Bonus Challenges (Optional)

- Add **custom wake words** (e.g., "Hey Lomiri") to activate the keyboard.
- Support **punctuation commands** (e.g., "comma", "new line").
- Implement **voice commands** (e.g., "delete last word", "send message").
- Add **multi-language switching** on the fly.

Resources

- [Vosk GitHub](#)
- [Lomiri Documentation](#)
- [Ubuntu Touch Forum](#)
- [QML Tutorials](#)

Submission Guidelines

- Submit your code in a **GitLab repository**.
- Include a **README** with setup instructions.
- Provide a **short demo video** (hosted on YouTube, PeerTube, etc.).
- (Optional) Write a **blog post** or create a **tutorial** for others to replicate your work.

Judging and Prizes

- **Best Overall Implementation** (Functionality + UX)
- **Most Creative Feature**
- **Best Documentation**

Why This Matters

A voice-to-text keyboard for Lomiri would:

✅ Improve accessibility for users with disabilities.

✅ Enhance productivity for hands-free use cases.

✅ Showcase the power of **open-source tools** like Vosk and Lomiri.