VOICE ENABLED TRANSLATION AND ASSISTANCE FOR RURAL INDIA

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PROBLEM STATEMENT

Millions of rural individuals face significant barriers in accessing critical information about government schemes, healthcare services, and agricultural practices due to :

- **Low literacy levels** – Many individuals cannot read or write, limiting access to digital or printed information.
- **Limited internet connectivity** – Many rural areas suffer from poor or no internet access, restricting their ability to search for information.
- **Language barriers** – Most online resources are available in English or Hindi, making them inaccessible for native speakers of regional languages and dialects.
- **Complex government processes** – People often struggle to navigate bureaucratic procedures, leading to missed benefits from welfare programs.

CHALLENGES

- **Accurate Speech Recognition in Noisy Environments** – Rural settings have high background noise, including market sounds, farming machinery, and natural elements.
- **Understanding Local Dialects and Regional Variations** – Indian languages have multiple dialects and accents, making speech processing complex.
- **Providing Contextually Relevant and Easy-to-Understand Information** – The system needs to ensure clarity, accuracy, and relevance in responses.
- **Limited Internet Access** – The solution must work offline to be effective in remote areas.

REAL CASE SCENARIO

A farmer in a rural village faces a **pest infestation** on his crops but struggles to find reliable solutions due to **illiteracy and lack of internet access.** With no nearby **agricultural experts**, he relies on **word-of-mouth advice**, which may be inaccurate. The proposed **voice-enabled NLP system** allows him to **ask questions** in his **local dialect** and receive **spoken, easy-to-understand responses** with verified pest control methods. This ensures **quick action, reduces crop loss, and improves productivity**, even in offline conditions.

CHALLENGES

01

Cannot find reliable information in his native language.

03

Government helplines are difficult to navigate due to language barriers.

02

Relies on local word-of-mouth advice, which may be inaccurate.

SOLUTIONS

01

The farmer asks his question via voice input in his native language.

03

The response is translated and spoken back in the farmer’s language for easy understanding.

02

The system recognizes the speech, processes the query, and retrieves the best answer from trusted sources.

NOVELITY OF APPROACH

- MULTILINGUAL VOICE ASSISTANCE
- OFFLINE FUNCTIONALITY
- CONTEXT-AWARE AI
- ADAPTATION TO RURAL SPEECH

LITERATURE SURVEY

https://docs.google.com/spreadsheets/d/1Ui8xLol27GnYdJsX8C7YAebHT-AilJmOtrYJ8QYivDE/edit?usp=sharing

SDG's ALIGNED

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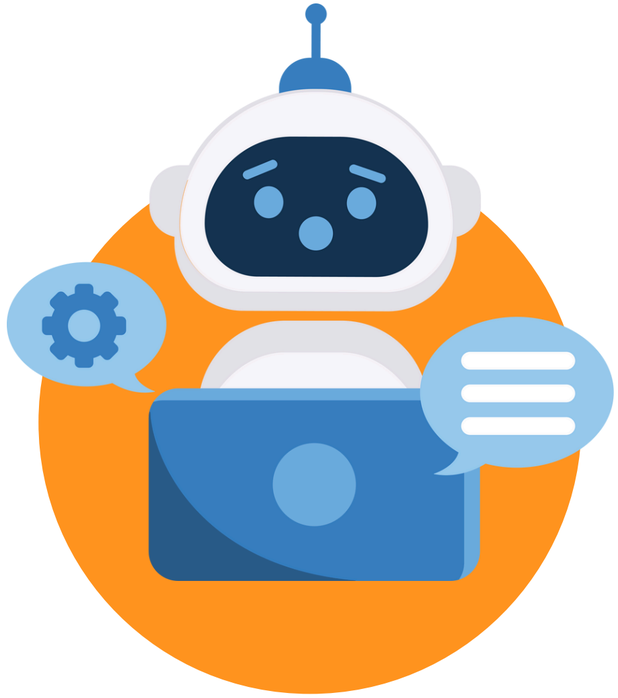

THANK YOU