Optimizing Whistle-Blower Case Management in an NGO via Speech-to-Text Solution

Enabling The Audit Officer To Pace Up The Investigation Process Through Azure Speech To Text:

Our client, an NGO believes that every dollar counts and has zero tolerance for fraud, corruption and waste that prevent resources from reaching those who need them. Annually, the investigation officer handles many in- person investigations derived from whistle-blower reports, which involves confidential audio interviews that need to be transcribed for evidence and further analysis.

Meet Our Client

A global NGO player that raises and invests US$4 billion annually to fight the deadliest infectious diseases in more than 100 countries. Their motto is to ensure a healthier, safer, and more equitable future for all.

Operational Challenges:

- Manual transcription may expose sensitive investigation details, posing serious risks to data security and the privacy of involved individuals.
- Professionals tasked with transcription faced difficulties interpreting various global accents and specialized jargon, which often led to inaccuracies in the transcribed text.

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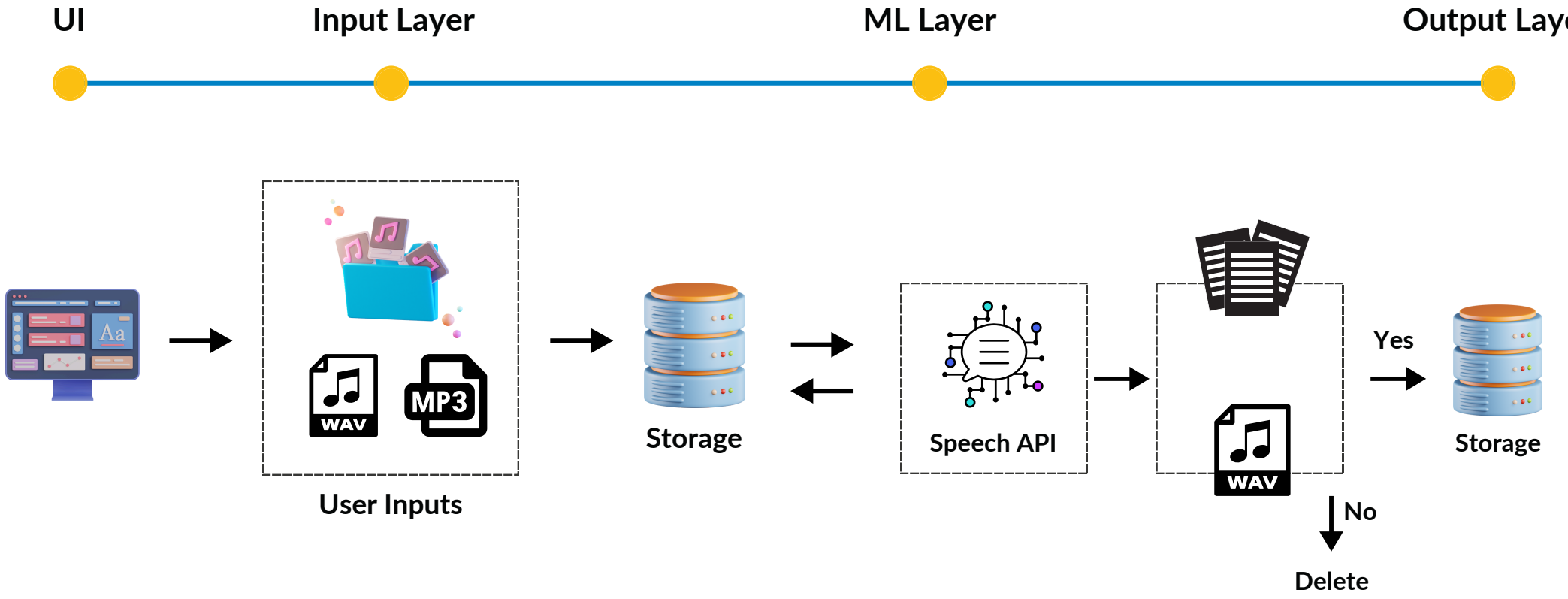
- Prolonged transcription times due to manual processing contributed to significant holdups in the investigation pipeline, delaying critical decision-making.
- Variations in transcriber skill levels resulted in transcripts of inconsistent quality, reducing the reliability of vital evidence.
- As the volume of cases increased, the manual transcription approach proved to be non-scalable, failing to meet the rising demand for rapid and precise transcription.

Zuci’s Unique Approach:

A speech-to-text pipeline was custom-designed by our team. This comprised of four distinct layers, each with a specific function, to streamline the transcription process while ensuring high accuracy and maintaining stringent security standards.

Layer 1 - UI Layer

- Developed using Streamlit, this layer offers a user-friendly interface for investigators to submit audio recordings and accompanying information.
- It also allows users to manage transcription settings, including the option to save or discard the transcription results.



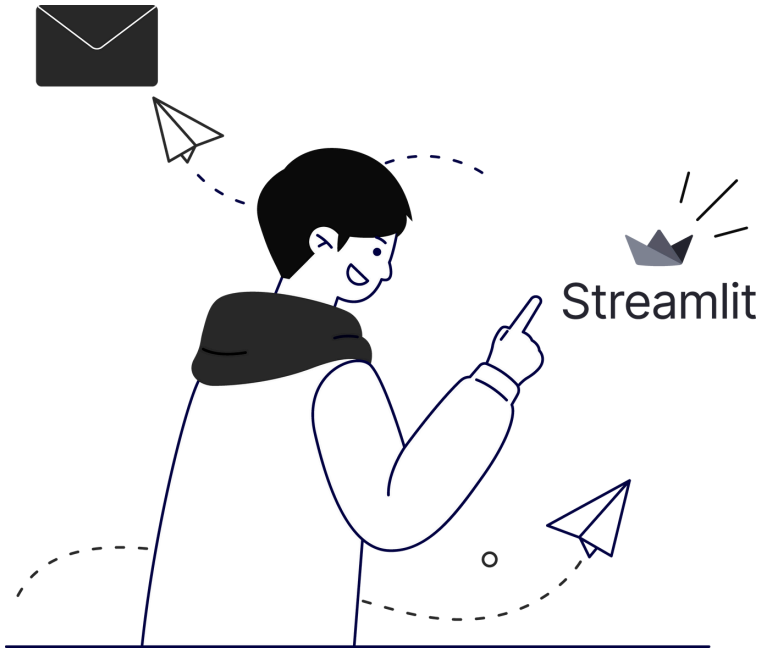
Schematic representation of speech-to-text workflow

Layer 2 - Input Layer:

- In this layer, user inputs are processed, and audio files are validated against supported formats and metadata rules. The system ensures that files and data adhere to the specified requirements before proceeding to the ML layer.

Layer 3 - ML (Machine Learning) Layer:

- Azure Speech-to-Text services are integrated at this stage, where the audio files undergo processing. We used Python scripts to refine the Azure model to enhance its ability to recognize various global accents and dialects accurately.
- This layer is also responsible for distinguishing between multiple speakers and assigning timestamps and speaker IDs, which are critical for the subsequent analysis.



Layer 4 - Output Layer:

- Transcription results are presented back to the user through the Streamlit interface or sent directly via email, depending on user preferences.
- The output layer allows secure deletion of audio files and transcriptions if the user has chosen not to save the results, thereby adhering to privacy and security protocols.

Business Outcomes:

- The automated speech-to-text system has reduced the transcription time from an average of 2-3 days (for manual transcription) to a couple of hours for the majority of audio files, which is a time reduction of around 90%.
- By automating the transcription process, the need for professional transcribers has been significantly reduced, leading to a significant cost saving on transcription services.
- The efficiency of the ML model has led to a significant enhancement in accuracy, reducing the error rate to less than 2% indicating an 80% improvement in comparison to human transcribers.
- The system’s capability to transcribe audio files concurrently has increased the department's case handling capacity by 200%, without compromising on quality or security.

Tech Stack

Microsoft Azure

python™

Streamlit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Want to create robust insights of your organization's data across platforms?
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