



**How can we improve the lives of people with
visual impairments in a way that allows them to
stay informed in an easy and accessible way?**



Project presentation



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HACK FOR ACCESSIBLE PERSONALIZATION AND
RECOMMENDATION

EXECUTIVE CHALLENGE



ABOUT OUR GOAL

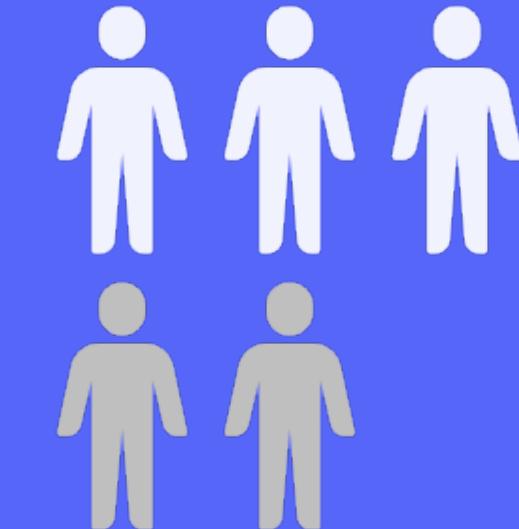


Our project aims to ease the access to the current abundance of news and information through a news recommendation system capable of compressing and providing content in a summarized, precise, and easy-to-digest manner, which is easy to use and can be used for both reading and listening of news, thanks to the Text-to-Speech and Speech-to-Text Azure AI Speech Services. This way, people with visual impairments can stay informed in an innovative and accessible way.





TARGET AUDIENCE

3.44% 
**VISUAL
IMPAIRMENT**

There are currently more than 285 million visually impaired people in the world.



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MAIN COMPONENTS



AZURE AI SPEECH
Transcribe speech to text with high accuracy, produce natural-sounding text-to-speech voices, translate spoken audio, and use speaker recognition during conversations.

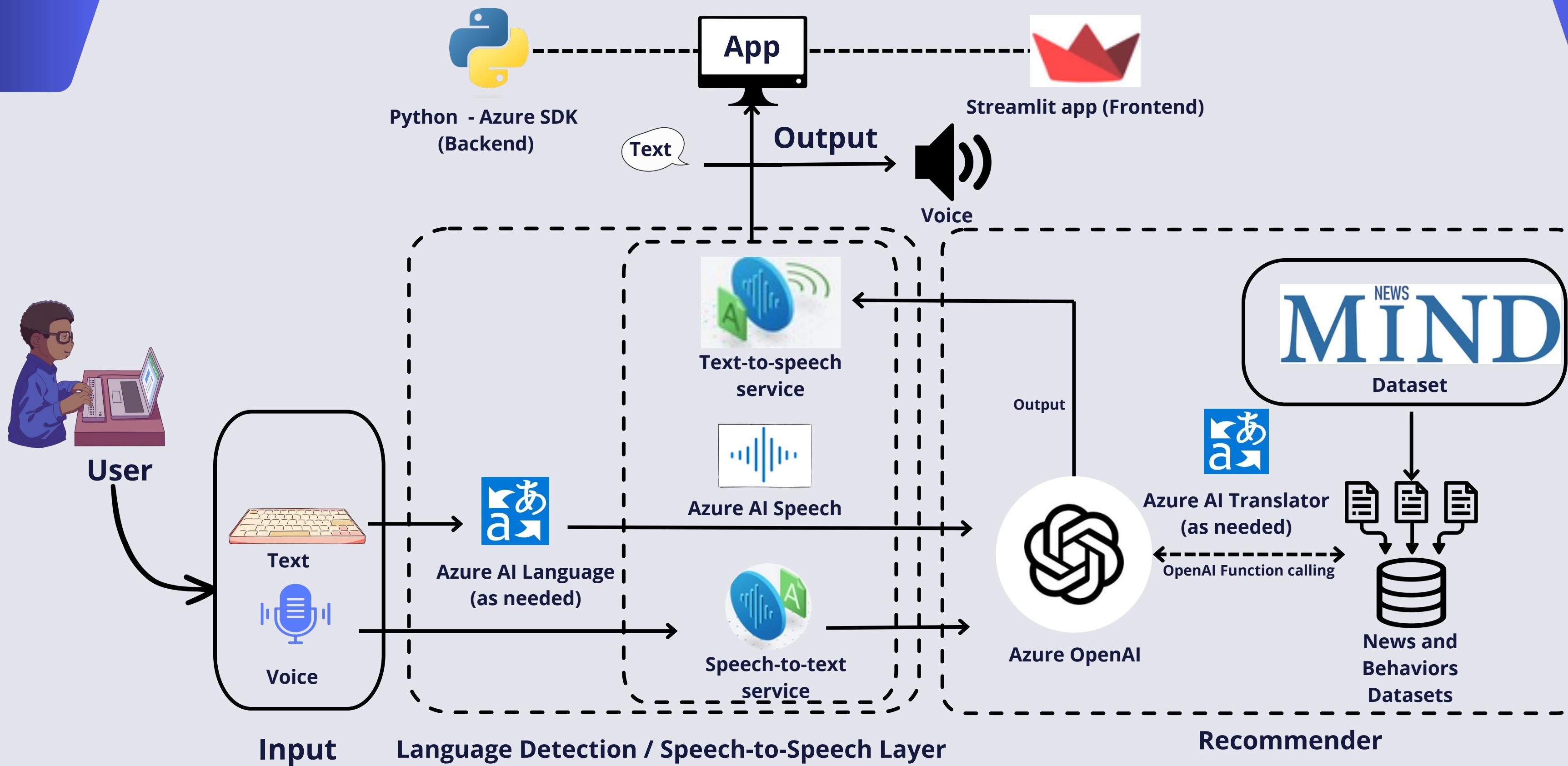
AZURE AI LANGUAGE AND TRANSLATOR
Translate text instantly or in batches across more than 100 languages, powered by the latest innovations in machine translation.

AZURE OPENAI
Azure OpenAI Service provides REST API access to OpenAI's powerful language models including a set of prebuilt and curated models from OpenAI, Meta and beyond.

MIND DATASET
Microsoft News Dataset (MIND) is a large-scale dataset for news recommendation research. It was collected from anonymized behavior logs of [Microsoft News](#) website



ARCHITECTURE



ABOUT OUR INNOVATIVE PROPOSAL



VISION

"we believe technology must be accessible for everybody, especially people with disabilities must be able to enjoy of its power and benefits."

DESIGN APPROACH

"We believe innovation doesn't mean starting from scratch but knowing how to take advantage of and integrating available technologies to do incredible things."

SCALABILITY

"Our solution is able to scale as needed, because our solution components are not tied to specific technologies in particular."

ADAPTABILITY

"Our solution can be adapted to different scenarios and data sources."





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MAIN DESIGN APPROACHES

We take advantage of the powerful capabilities of Microsoft Azure, which has more than 200 products and cloud services designed to ease the implementation of new applications, among which are the Azure AI Services that allow us to build smart solutions, such as Azure AI Speech, Azure AI Translator, and the incredible Generative AI models of the Azure OpenAI Service which were essential elements in the implementation of our innovative solution.

- 01
- 02
- 03
- 04

We began with a proof of concept using Azure AI Speech services, in combination with Azure AI Natural Language Processing with Custom Named Entity Recognition.

Then we replaced the Azure AI Natural Language Processing component with Azure OpenAI using Tools (Functions) in a new proof of concept.

Next, we created a recommendation system using Microsoft's MIND Dataset, to be able to recommend the most interacted (clicked) news to the user.

Finally, we created a new proof of concept using Streamlit for the front end to replace our console-only approach.



KEY LEARNINGS

- Using a prototyping model as methodology allowed us to create multiple and incremental proof of concepts to test different solution approaches in a fast way.
- The use of “out-of-the-box” components with the least customization as possible helped us implementing solutions faster.
- For us it was key to research the needs of actual users with visual impairment from online forums like the /r/Blind subreddit. On them we learned that people with this type of disability have a need for apps that can address very specific needs, and not generic screen reading apps, which most of them already have.



THE DEVELOPER TEAM



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DEMO

