

GuideMe : Extra hand to Navigate

For Visually Impaired

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Situation Trying To Address

- Globally, at least **2.2 billion** people have a near or distance vision impairment.
- Vision impairment severely impacts quality of life among adult populations.
- Vision impairment can contribute to **social isolation, difficulty walking, a higher risk of falls and fractures**, and a greater likelihood of early entry into nursing or care homes.

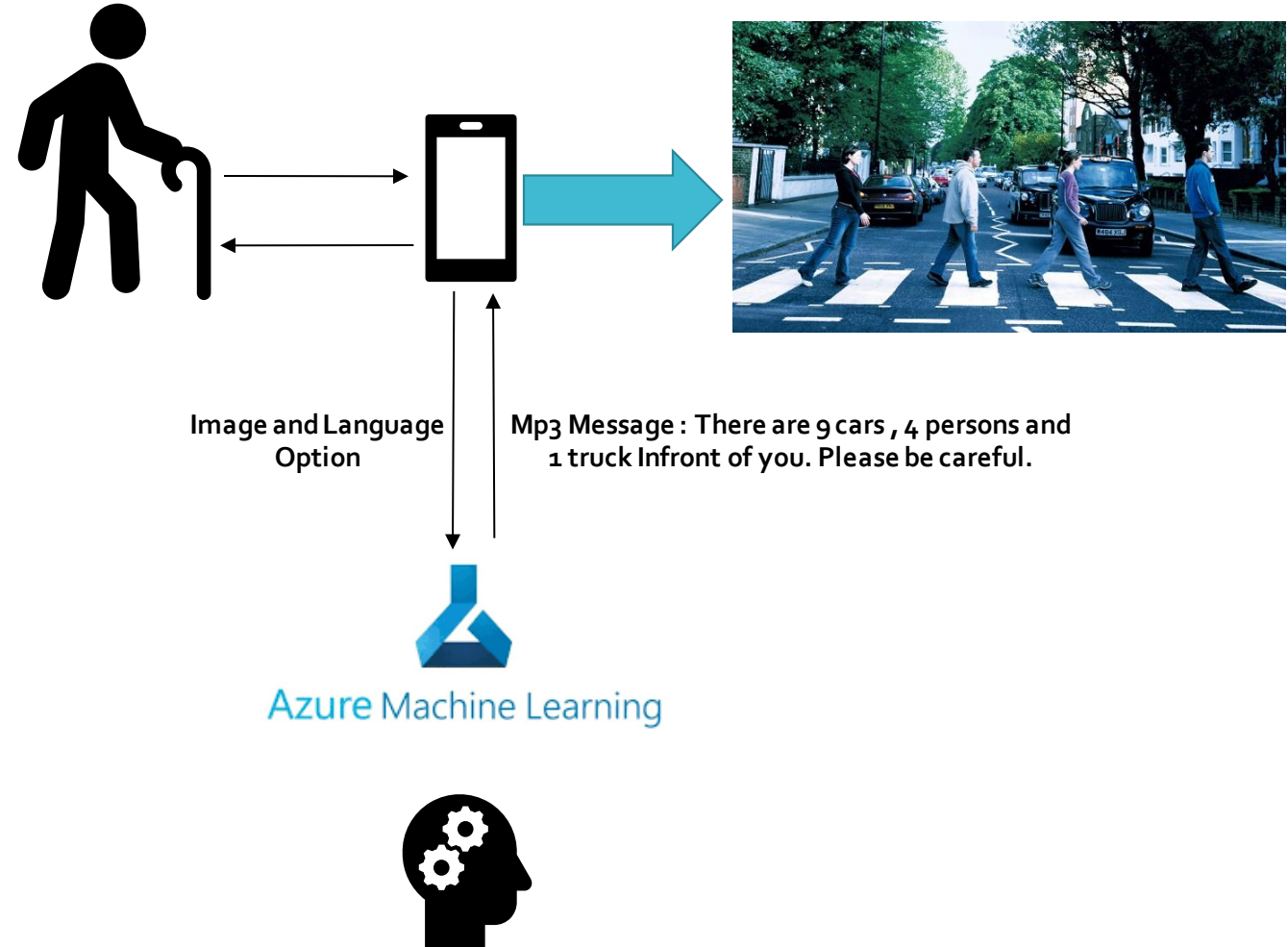
Complications Which Need Solution

- The white mobility cane helps people who are blind or severely visually impaired know when there are tripping hazards such as cracks, poles, etc
- But this is limited to area ahead and only in range of the stick with limitation of walking surface only.
- This doesn't provide any information around what's in front , while crossing road what's around.

Solution To The Problem

- Machine Learning based Mobility cane which provide solution to problems listed in last slide
- User with cane with Integrated camera connected to mobile device app
- When user needs to understand what's in surrounding or want to cross the road
- Clicks the button on the cane which through mobile send that image to Azure ML endpoint and process the image
- The instruction sent back to mobile device app as mp3 which play for the user

Solution HighLevel Design



Message : Il y a 9 voitures et 4 personnes et 1 camion devant vous. Veuillez faire attention. (French)

Processing Duration : --- 441.55073165893555 milliseconds ---

Message : There are 3 bench and 1 clock and 1 potted plant in front of you. Please be careful. (English)

Processing Duration : --- 330.0776481628418 milliseconds ---

Message : Looks like nothing around you. Please be careful but you can progress. (English)

Processing Duration : --- 330.4877281188965 milliseconds ---

Message : Hay 1 bicicleta frente a ti. Por favor ten cuidado. (Spanish)

Processing Duration : --- 341.5069580078125 milliseconds ---

Next steps ?

- To try this PoC to work on **video rather than just on image** , so it will be continuous GuideMe support
- **Train model on more images** to cover wide scenarios
- Work on demo mobile app and talking to Azure ML endpoint



DEMO

