SENSAI

Team SensAi

2 friends, after successfully dunking the 1st year of college, get together to participate in Imagine Cup tournament when they see the rush of try-hard around them starting from their batch till the students from the final year.

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The Concept

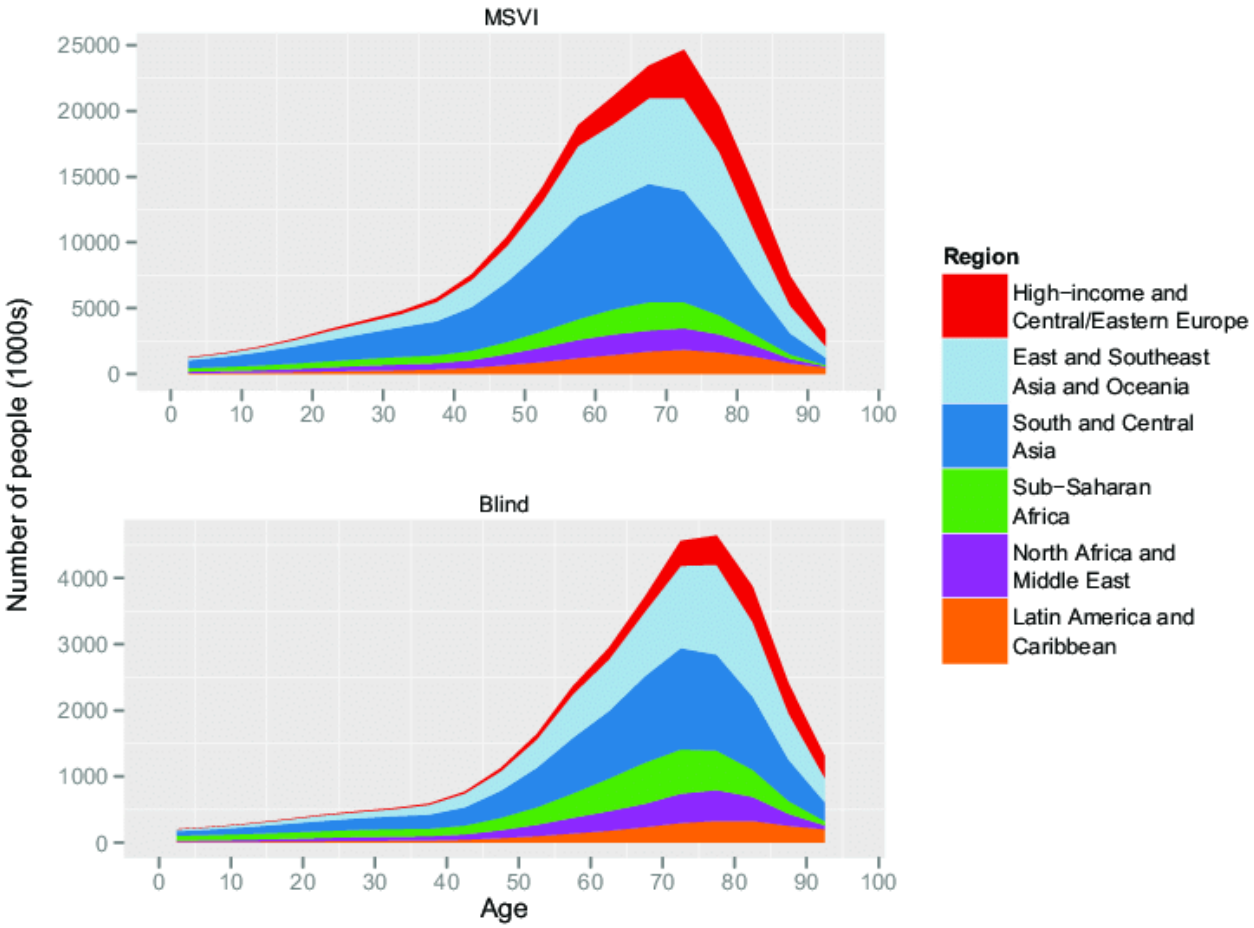
My friend and I used to encounter specially-abled people daily on our way to college and also in our neighborhoods. Through this competition we got the motivation to invent a piece of technology which could relieve them of their day-to-day dependence on other people's help.

So, our project is to provide an alternate solution for those people and thus transform their inability to a new ability. For example, if a person can't see then our product will inform him/her literally everything about his surroundings through audio (which is quite literally the idea of our entire project along with some special features). All they have to do is download our mobile application and connect any audio device to their phones. We believe that those people also have the right to be independent but they are not quite able to feel that sense of independence because every time they have to do something which requires the use of their disabled sense organ, they come on the mercy of the people around them whether or not those "normal" people will help them. We are also going to add facial recognition which will help them identify their close ones as we do.

Target Audience:

Every person with visual or hearing impairment in the entire world is within our radar of product distribution because we think that having our product in their day-to-day life would make them less dependent on others and thus give them the feeling which we all as "normal" people feel every day.

But you know we got to start from ground zero before reaching global level, so here are the statistics of regional, national and then international population of blind and deaf people:



So, the blue region in this graph shows the number of people who are blind versus their age category in South-East Asia. You will notice that the area occupied by the blue graph is maximum among all the other graphs, which in turn brings out the necessity of our product in this region. And also, the total population of blind people is quite high around

the world (as can be seen in the graph) which calls for immediate attention for the aid of these people.

Okay let me give you an example. Suppose I am blind and I am walking down the street with the help of my stick and other people around me guiding me on my way to just make me reach the grocery store at the end of the block. Now, when I constantly hear people telling me to move according to them, what is the first thing that I'd wish for at that particular instant. Good guess, I would think, "I wish I had my eyes". But that is not possible right? Now what if I could hear about "almost" every item that is around me withtheir respective distance from me, and now I do the judgment on my own as to where I should go and how I should walk in order to tackle least obstacles. Wouldn't that be great??

Our product would work in a similar way except it has additional features for deaf people also who will now be able to connect with the outside world without the use of sign languages.

Feedback

The idea here is to click pictures of surroundings with the help of a raspberry pi camera, process it with the help of cognitive services of Microsoft azure and identify the objects present in the picture, calculate the distance of that object from the camera and then convert the description into audio also with help of Text to Speech services of azure and then finally return the audio feedback in the mobile application which will then play the audio to the person wearing the headphones/earphones. The best part is we are also going to add facial recognition which will help the person using our product identify anyone whose identity he/she saved earlier.

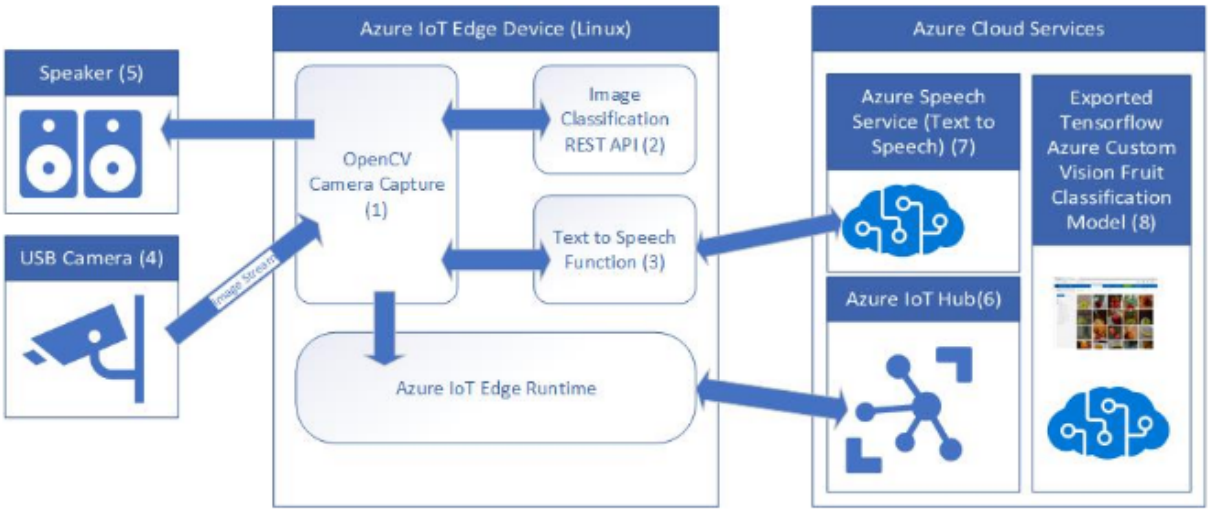
I guess the only thing in your minds is how much time would take to complete the above process and give the output? Well, we have got that covered too. The total time taken to do all of the above-mentioned steps will be roughly 3-5 seconds and faster the azure service works, the lesser time it would take.

How it works:

This is what is going on behind the scenes of the product. The pi camera captures the image and with the help of AZURE COMPUTER VISION and our trained model on AZURE, the objects in the picture are identified and their respective distances are calculated which

then moves on to be converted into text and then into speech with the help of AZURE TEXT-TO-SPEECH SERVICES. The speech is then played into the audio device connected to the raspberry pi.

With the help of our idea we want to reduce the problems of the specially-abled people.



Think about the following questions, when writing this section:

- Does the project make effective and appropriate use of the major features of its chosen platform(s)?
- Were there significant platform features or even platforms the project could have benefitted from but failed to utilize?
- Does the project include innovations in technical design and/or implementation?
- Does the project include innovations in user experience?
- Does the project have a professional degree of production in terms of performance, user interface, visuals, and audio?

The Business Plan:

Competition:

- Our idea is not exactly present in the market right now for sale by any company but there are some researches about the same base on which our idea is based. There is no such product yet in the market but due to the researches that are present there might be competition in future if companies start investing in this idea. If you have read the doc till now you will know that our project is based on visually-impaired people and helping them out being a noble cause, we think that keeping the competition aside the companies should start investing in this idea and

our model because the other researches do not have structural efficiency and we have got that covered in our solution.

Business Model

- Now coming to how to make ,money from this project, 12% of entire world population is visually-impaired, so I think with the help of some experience in finance and technology we will be able to deploy the solution in real world and also we are not planning to sell it at a cost much higher than its cost price just by seeing its critical nature in market because we as youngsters are out to solve real world problems and during this process we will make enough for a sustainable living. Our product is piece of technology which will be wanted by many Fortune 500 companies because this is the technology which will be required in the near future until and unless we come up with another idea of replacing disabled parts with technology cost efficiently. So till then we got to adjust with this model and wait for its upgrade which will obviously be quicker and more efficient if we get some help from the experts in this field.

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