

Review on smart glasses with Social Distancing Assistance for Visually Impaired

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ABSTRACT

Covid 19 is a highly infectious and easily contractable virus that can become extremely hard to control once it begins to spread. More than 3/4th of the human population was affected by this pandemic. So, it is very essential to maintain social distance between people to reduce the spread of the disease, but maintaining social distance is not at all easy. Many people gather and roam on the streets knowingly or unknowingly. The government took several measures to maintain social distance. But the maintenance task is a bit difficult. If we don't take an appropriate measure, the chain will continue, and this pandemic spread throughout the country. This will result in the death of a large number of people. So here we are making a device that will alert healthy people when they go near areas that have been infected by the virus

INTRODUCTION

Technology is developing day by day. One such technology is Geofencing technology. Geofencing is a location-based service. Here, an app or other software uses GPS, RFID, WIFI, or cellular data to trigger a programmed action when a mobile device enters or exits a particular boundary. This geofencing technology can be implemented to the visually impaired by notifying them not to go to an infected place and thereby we can reduce the spread of the disease. This is not only in the case of the visually impaired and not only for isolating from the Covid 19 pandemic. Depending on how a geofence is configured it can prompt mobile push notifications, trigger messages, or can give alerts. To provide this virtual boundary to the visually impaired, first, we need to find the infected place. For that, we need to scrap the data from the website using python. This is called web scraping. By utilizing this technique, we can scrap the data from the website of central and state governments that mentioned those infected places. After that, by providing speakers to them, we can help them keep their distance from the infected place.

LITERATURE SURVEY

Sheethal jayabhay, Dhruvi Jain, Siddhibhagat, Priya Chaudhari, Vanessa D Britto [1], proposed a system that helps to solve an arithmetic word problem by illustrating its solution in the form of a picture and it also helps children to anticipate the text definition. There are mainly two steps, the first one is providing the solution for the given word problem in the form of a diagram which is done using Natural language processing. The second one is creating pictures for the text definition with the help of two stages Generative Adversarial Network.

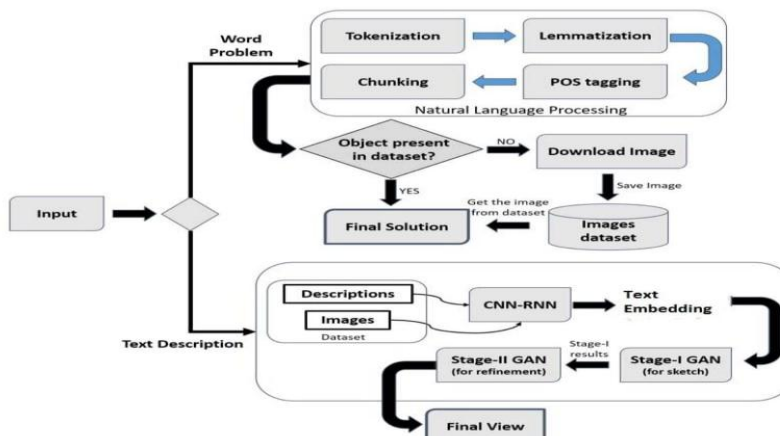


Fig1: Architecture of envision system

Dipali Koshti, Supriya Kamoji, Kevin Cheruthuruthy, Surya Pratap Shahi, Mayank Mishra[2], proposed a disaster information system that helps to identify the motion of people and give instructions about the risk for them. The system consists of a client, a server, and an information source. The client is an application program that runs on iOS, it is connected to the internet and gets the details from the server. The Server is nothing but a web application that runs on Linux. It obtains disaster information that is available in information sources. The information source is a file that contains weather warnings and advice.

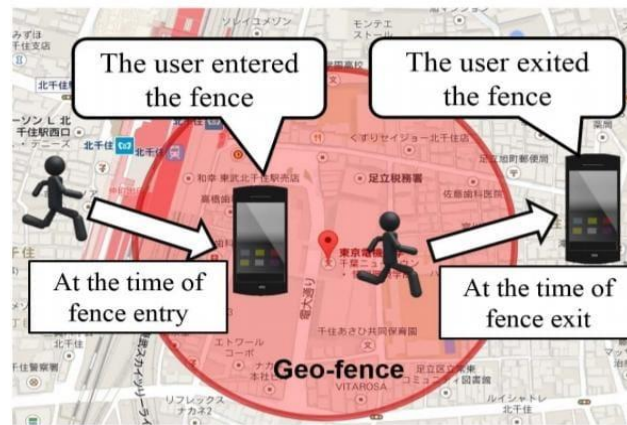


Fig 2: Example of geofencing

Lixiang Li, Xiaohui Mu, Siying Li, Haipeng Peng[3], proposed that Face recognition is one of the inexpensive biometric technologies. It is a technology in which one can easily recognize a person by identifying the facial features like the distance between the eye's eyebrows, depth of our eye, etc. So, by comparing these features one can easily recognize the person in front of them. By implementing this technology to them we can help them in recognizing the persons' faces. After normalizing the Image, the image is divided into grids and those features were extracted. After Extracting those features it is compared with the database. And finally, we can identify the person.

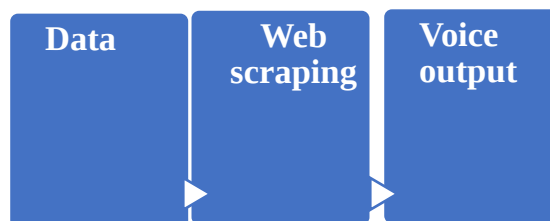
David Mathew Thomas, Sandeep Mathur[4], proposed a system that helps us to remove the data from a different source with the aid of programming called Web crawler scraper by employing the programming language Python. Data is a collection of all the amorphous data from different sources. Then the data is been analyzed based on spec, assembling, establishing, cleaning, and then re-analyzing, and at last models and algorithms are applied to get the desired result. Web scraping is a method that helps us to extract or collect any data as per the user requirement.

Anusha Srirenganathan Malarvizhi, Han Lan, Yi Liu, Yun Li, Nadiene Meister, Quan Liu, Zifu Wang, Jing Chao Yang and Chaowei Phil Yang[5] proposed a system called COVID- Scraper. It makes use of Web scraping technologies that are mainly used in data science. Covid scraper is a computerized toolset that can do tasks exclusively by user settings. This is done by merging open-source packages and tools for data retrieval, network simulation image analyzing, and workflow automation. The user can easily personalize the data sources, the data array of the output data product, and processing frequency. We can also collect databases for another purpose by modifying the source code for doing the task like natural disaster detection and can save many lives.

Go Yamanaka, Takayuki Nishio, Masahiro Morikura, Koji Yamamoto, Yuichi Maki, Shin-ichiro Eitoku and Takuya Indo[6] proposed a geo fencing system which is camera based and used for WLANs. Herewith the help of camera images, the location of STAs is evaluated and tracked precisely. Here the geofenced area is set in such a way that it can be visualized on camera images which helps the operator because it allows automatic operation of drawing the geofenced area on the camera images. Due to the definite localization by camera images, the system provides accurate control of geofencing. It also proposed a WLANs activation control that permits STAs to pre-activate the WLAN interface and connects with WLANs APs when STAs admit an area where the operators tend to use their STA so that the power consumption is minimized

PROPOSED METHOD

We all know that our world is struggling with the covid pandemic. Covid affected the lives of many people. The only method to control the covid is maintaining social distance. Keeping this as a problem statement we are proposing a unique model which helps the blind to ensure that they are in a well-protected place. Here we are planning to use several technologies like web scraping and geo-fencing. The proposed system is applicable not only for the visually impaired but also beneficial to everyone.



CONCLUSION

In this paper, we have proposed a novel method to help the visually impaired maintain social distance and thereby reduce the spread of the Covid 19 pandemic. The proposed technology called geofencing helps them to keep distance, depending on how a geofence is configured and thereby giving alert the people, they can step back from that place. Here we are also implementing another technology called face recognition which helps the visually impaired in recognizing the person in front of them.

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