SIGN LANGUAGE BASED COVID-19 PREVENTION

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Abstract— The recognition of sign language gestures from real time video and successfully classifying it into either one from a list of categories have been a popular and challenging field of research. Many researchers have been working on Sign Language Based Covid 19 Prevention. The prevention and protection Covid 19 in crowd area now a day's very challenging task. Now a day's most of the people are using lift to go one floor to next floor. For moving one floor to next floor society people need to enter floor number through keypad. Suppose person has any covid 19 issue may be if he presses keypad may be virus infection will spread easily. In our application web camera will integrate user can show the finger Sign Language. This application automatically capture sign language and compare with train dataset and effectively move the GUI lift image. For doing this first we need to train the system to identify sign.

Index Terms: Sign Language, Covid 19, GUI Lift Image.

I. INTRODUCTION

S ign Language Recognition has been accepted as a widely recognized communication model between deaf-mute people and normal people. Recognition models are categorized under computer vision-based and sensor-based systems. In computer vision-based gesture recognition, camera is used for input and image processing of input gestures is done before recognition. The processed gestures then are recognized using various algorithms like Hidden Markov Model and Neural network techniques. Proposed system novel scheme of sign language Recognition has been proposed for identifying the text gestures in sign language. With the help of computer vision and neural networks we can detect the signs and give the respective text output effectively. Deep learning must be well versed with the gestures so that we can get a Segmentation The

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first image is then transformed to grayscale. As much as this process will result in the loss of colour in the region of the skin gesture, it will also enhance the robustness of our system to changes in lighting or illumination.

II. SYSTEM STUDY

1) Existing System:

It involves studying a procedure or business in order to identify its goals and purposes and create systems and procedures that will achieve them in an efficient way. Use cases are a widely used systems analysis modeling tool for identifying and expressing the functional requirements of a system.

Demerits of the Existing System:

1. User has to operate manually
2. It is problem for every user because any one affect covid infection means it will spreads.
3. This is big problem for all users

2) Proposed System:

The drawbacks, which are faced during existing system, can be eradicated by using the proposed Sign Language Based Covid19 Prevention. The main objective of the proposed system is to provide a user-friendly interface for society people .In this proposed system developed for many advantages. In this proposed system user don't want to press the button. Our proposed system effectively implements Sign Language Based Covid19 Prevention.

Features:

- It is a user friendly application
- User can show the finger Sign Language
- Automatically capture sign language

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3) Feasibility Study:

A. *Technical Feasibility*

Technical Feasibility is the assessment of the technical view of the system. The system is developed for Dot net environment; a platform independent tool is used to develop the system.

The consideration those are normally associated with the technical feasibility include the following

- ➢ Development risk
- ➢ Resource availability
- ➢ Technology

B. *Behavioral Feasibility*

It is common knowledge that computers illustrations have something to do with turnover transfers, retraining and changes in user or developer status. The main emphasis is customer service, personal contacts with customers. Feasibility report is directed towards management. It evaluates the impact of the proposed changes on the area in question. The report is a formal document for management use, brief enough and sufficiently non-technical to be understood.

C. *Economical Feasibility*

Economic feasibility or cost benefit is an assessment of the economic justification for a computer based system project. Though this system the administrator can use the tool from anywhere within their concern. The system is developed using the existing resources. So the project is economically feasible.

D. *Operational Feasibility*

Operational Feasibility deals with the study of prospects of the system. This system operationally eliminates all the tensions of the administrator and helps in effectively tracking the project progress. This kind of automation will surely reduce the time and energy, which previously consumed in manual work. Based on the study, the system proved to be operationally feasible.

III. PROPOSED WORK

A. *Module Description:*

1) *Camera Configuration and capture Process:*

This application is fully applied with the camera. Once the person wants to use the lift we are going to configure the camera in this application. The camera will continuously running. This is fully control on user. If the person enters in to the lift the user will show the sign to the camera. The camera will capture the image. This module is used to capture the image.

2)*HSV Colour space and background elimination:*

Since the images obtained are in RGB colourspace, it becomes more difficult to segment the hand gesture based on the skin color only. Finally transform the images in HSV colourspace.

3)*Segmentation:*

Segmentation The first image is then transformed to grayscale. As much as this process will result in the loss of colour in the region of the skin gesture, it will also enhance the robustness of our system to changes in lighting or illumination.

4)*Sign Identification using CNN:*

In this module helps the camera to identify the sign image. If the user shows the one finger means the camera will capture the image and identify. A CNN model is used to extract features from the frames and to predict hand gestures.

5)*Pattern Matching:*

Pattern Analysis is the process of checking whether a specific sequence of data exists among the given training data.

B. *Types of Testing:*

1)*System testing*

Software testing is a critical element of software quality assurance that represents the ultimate review of specifications, design and coding. The user tests the developed system and changes are made according to their needs. The testing phase involves the testing of developed system using various kinds

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of data. It involves user training, system testing and successful running of the developed system.

The changes are made according to their needs. The testing phase involves the testing of the developed system using various kinds of data. While testing, errors are noted and corrections are made system testing is the stage of implementation, which is aimed at ensuring that the system works accurately and efficiently before live operation commences. The candidate system is subject to a variety of test: stress recovery, and security and usability tests.

2)Unit Testing

Unit testing focuses verification efforts on the smallest unit of software design, the module. This is also known as "Module Testing" The modules are tested separately this testing is carried out during programming stage itself. In this step each module is found to be working satisfaction as regard to the expected output from the module.

3)Integration Testing

Integration testing focuses on the design and construction of the software architecture. Data can be lost across an interface, one module can have adverse effect on another sub functions and show on. Thus integration testing is a systematic technique for constructing test to uncover errors associated with in the interface. In this project, all the modules are companied and then the entire program is tested as a whole.

4)Validation Testing

Validation testing is the requirement established as a part of software requirement analysis is validated against the software that has been constructed. This test provides the final assurance whether the software needs all functional, behavioral and performance requirements.Thus the proposed system under consideration has been tested by using validation testing and found to be working satisfactory.

5)Output Testing

After performing the validation testing, the next step is the output testing of the proposed system, since no system could be useful if it does not produce required output in the specific format. Tested asking the users about the format required by them, the output is considered into two ways: one is on the screen and the other is printed format. The output format on the screen is found to be correct as the format designed according to the user needs, for the hard copy also, the output comes as specified by the user. Hence output testing does not result in correction in the system.

C. *System Implementation:*

Implementation is the stage where the theoretical design is turned into a working system. The most crucial stage in achieving a new successful system and in giving confidence on the new system for the users that it will work efficiently and effectively. The system can be implemented only after thorough testing is done and if it is found to work according to the specification. It involves careful planning, investigation of the current system and its constraints on implementation, design of methods to achieve the change over and an evaluation of change over methods a part from planning. Two major tasks of preparing the implementation are education and training of the users and testing of the system. The more complex the system being implemented, the more involved will be the systems analysis and design effort required just for implementation. The implementation phase comprises of several activities. The required hardware and software acquisition is carried out. The system may require some software to be developed. The mobile application is implemented in python as front end mysql as back end.

IV. EXPERIMENTAL RESULTS

Camera Configuration:

1) *Normal picture*

2)*Camera capture*

Sign Input Screen

3)*5^Th Floor*
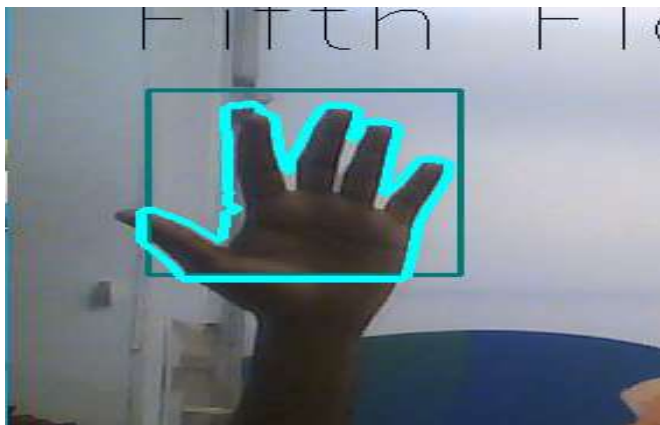
4)*4^Th Floor*

5) *3rd Floor*

6) *2nd Floor*

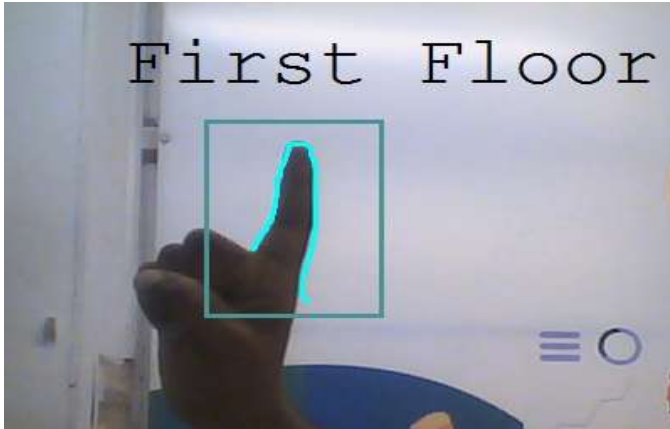*7)1st Floor*

V. CONCLUSION

It is concluded that the sign language based covid protection application works well and satisfy the all lift users. The application is tested very well and errors are properly debugged. The application is simultaneously accessed from more than one system. Simultaneous login from more than one place is tested. Proposed system successfully implements an Covid19 Prevention using sign language. our application successfully integrate web camera user can show the finger Sign Language .This application automatically capture sign language and compare with train dataset and effectively This application successfully reduce the spread of viruses in the environment. By adopting this specific prevention and protection measures recommended in the workplace, it will be possible to help overcome this COVID-19 pandemic.

FUTURE ENHANCEMENT

Every application has its own merits and demerits. The project has covered almost all the requirements. Further requirements and improvements can easily be done since the coding is mainly structured or modular in nature. Changing the existing modules or adding new modules can append improvements. Further enhancements can be made to the application with Voice interface, Some time Big apartment and malls have more than five floor at the moment identify the sign is more than five difficult process. Future we can integrate speech with this application. User can give voice input this system automatically identifies the voice and mover to particular floor effectively.

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