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Voice Recognition System for Automobile Safety.

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Abstract - *With the survey done based on current scenario and as per the observations the news of automobiles getting stolen by various means. Today's automobiles are providing the smart key based security mechanisms which provide the advanced security. Among available security systems which is useful to unlock the automobiles if we got locked inside and keys are outside, to track the stolen automobiles through the GPS built in it, also after getting crashed we are not in position as what to do next so that time, this system help to provide the requirements of user.*

However, there can be limitations such as if we don't have the key, then we are not able to move. To overcome these drawback, the proposed system is being implemented which will provide the authorized access to the automobiles. Here Raspberry Pi plays important role, as the modules such as Voice and face recognition are to be implemented. The security is provided with the help of different voice and faces which are stored in the databases. The system mainly focuses on voice as the commands are to be spoken by user, and according to that command the action is to be performed.

***Key Words*: Voice Recognition, Face Recognition, Machine Learning, Raspberry Pi, MARF, Python.**

1.INTRODUCTION

1.1 PROJECT IDEA

The idea of the project is to develop a system which will take voice as an input from user, and if the voice matches with the stored voice in the database, then the commands will be executed.

1.2 MOTIVATION OF PROJECT

The motive behind the project is to develop a system which will provide security and safety to the automobiles.

The system will be trained and according to the voice and face of user different profiles are been created. The noises behind the voice will be reduced, and also the accuracy will be increased.

2. LITERATURE SURVEY

Voice Recognition in Automobile

Author: Sarbjeet Singh, Sukhvinder Singh, Mandeep Kaur, Sonia Manhas.

Published by: International Journal of Computer Applications (0975-8887) Volume 6-No.6, September 2010.

This paper gives the idea, that how the system is reducing the background noise and increasing the accuracy of the system.

Speech Recognition Using Deep Learning Algorithms

Author: Yan Zhang

SUNet ID: yzhang5

This paper provides the machine learning algorithm which can be implemented using deep learning algorithm.

3. PROBLEM DEFINATION AND SCOPE

3.1 PROBLEM STATEMENT

Automobiles stealing is becoming a great threat to the society now-a-days. Instead of smart securities available for automobile they are at risk of getting stolen due to lack of more advanced security. The proposed system needs some mechanism which will not only provide the advanced security but also the safety for the multiple profiles. Here the proposed system will provide the advanced safety using face and voice recognition system with the help of Raspberry Pi. This will maintain the rights of owner of the automobiles and distinction among different profiles.

3.1.1 GOALS AND OBJECTIVES

The main goal of the proposed system is:

- To develop the system which will be smart enough to recognize the voice properly.
- To avoid flaws in today's security system as they provide the security after automobiles stealing.
- To reduce time to analyse the responses.
- To avoid unauthorized access of the automobiles.

3.2 STATEMENT OF SCOPE

Our system of voice recognition is related to machine learning which can be helpful for authentication of specialized user. Our System can be useful for providing safety and security for automobiles with very low costs. As this voice based system takes input as spoken words. Although proper identification of the each and every word is carried out by system module and after identifying words all the words are processed to do the operations. So that by this process, system will allow only specialized users to access. However, this system does not guarantee that user should need keys for access. In extreme cases keys may be required so that it becomes supportive system for the existing system. But this system shows implementation of the Artificial Intelligence with the help of machine learning to provide easy and secure access of automobile.

3.3 METHODOLOGIES OF PROBLEM SOLVING AND EFFICIENCY ISSUES

The proposed system will use Modular Audio Recognition Framework (MARF) which is Speaker recognition framework that provide an open-source research platform and a collection of voice/sound/speech/text and natural language processing (NLP) algorithms written in Java and arranged into a modular and extensible framework facilitating addition of new algorithms. All the issues which can be raised in the speech recognition are taken care by Modular Audio Recognition Framework. So, by using MARF, it will increase efficiency of voice recognition system so that voice of authenticated persons will be identified for further access. By using this framework all the essential operations of voice recognition made easier to fulfil the requirements.

For face recognition module, the algorithm that can be used is OpenCV.

3.4 OUTCOME

The outcome of the proposed system will be,

- Security systems of automobiles are enhanced.
- Carrying automobile key is not necessary.
- Automobiles are made more intelligent by machine learning.
- Various problems related to automobile security are reduced.

3.5 APPLICATION

The applications of the proposed system are,

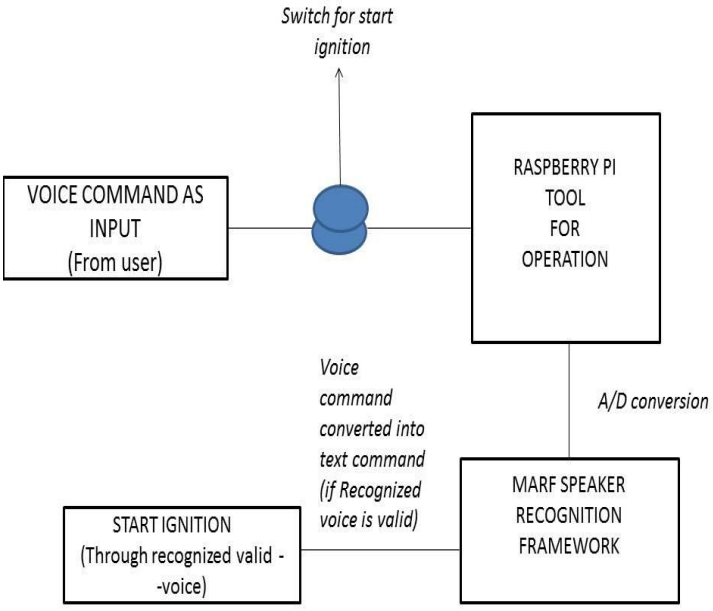
- To allow specific user authentication.
- To provide security with the help of voice recognition system in the automobile systems.
- To provide safety by face detection system to the existing systems like voice based system to maintain privacy.

4. DETAILED DESIGN

4.1 ARCHITECTURAL DESIGN

As per the proposed System, voice command spoken by the user is in the form of analogue signal. The command or voice, recognized through mic is to be implemented on system. The recognized voice goes to the Raspberry pi which is already programmed through MARF (Modular Audio Recognition framework), which will recognize the valid voice which is earlier trained by the system.
Also, here voice is converted into text format i.e. in digital format as the system doesn't understand analogue signal. So the speech to text conversion is done.

Architecture of Voice Recognition For Automobile Safety



5. SUMMARY AND CONCLUSION

5.1 Summary

So, basically main aim of proposed system was to develop a Voice recognition system which can be useful for providing security and safety. The proposed system was useful for authentication of the specified user by maintaining privacy of the system.

5.2 Conclusion

This proposed system provides security and safety in automobiles for the user with the help of Voice recognition module and Face detection module. Voice recognition system accepts voice as an input and determines authenticated user by machine learning techniques. Voice based system is secured with the additional face detection system. The action is carried out by taking input as control commands in spoken natural way. The method is proved for real-time operation. This system is useful for users with low costs and easy installation as compared to other system. It can be used in any type of automobiles. Thus voice recognition system allows specialized users to make use of the system.

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