International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 02 | Feb 2020 www.irjet.net p-ISSN: 2395-0072

Talking Receptionist Robot

Mayur Mankar[1], Aafrin Sayyed[2], Nandini Hedau[3], Gaurav Fating[4], Kirti Amnerkar[5]

Prof. Mahadev Mahajan[6]

[1,2,3,4,5]Student, Department of Electronics and Telecommunication Engineering, Jhulelal Institute of Technology, Nagpur, Maharashtra, India
[6]Professor, Department of Electronics and Telecommunication Engineering, Jhulelal Institute of Technology, Nagpur, Maharashtra, India

---

Abstract - *The use of robots within the hospitality industry is becoming more commonplace, with uses ranging from artificially intelligent chat-bots, designed to assist with the customer service process, through to robot assistants, deployed to improve guests' experience in a hotel. Part of the reason why robots have emerged as a popular technology trend within the hospitality industry is because ideas of automation and self-service are playing an increasingly vital role in the customer experience. The use of robots can lead to improvements in terms of speed, cost-effectiveness and even accuracy. For example, chat-bots allow a hotel or travel company to provide 24/7 support through online chat or instant messaging services, even when staff would be unavailable, delivering extremely swift response times. Meanwhile, a robot used during the check-in process can speed up the entire process, reducing congestion. We are trying to build a raspberry pi based cost effective robot.*

***Key Words*: Raspberry Pi, Talking Robot, Face Recognition, Voice Recognition**

1. INTRODUCTION

In today's day to day life Robotics can play a major role. Robotics makes thing simple. The main attraction of any robotic system is reducing human labor, efforts, time and errors due to human negligence. In the near future, robots will perform services and assistive tasks, and be extensively used as helpers in activities of daily living. In order to achieve acceptance of robots, their design should be planned carefully according to their role. Receptionist is a job that is useful as support for common people in everyday life, and that can potentially be performed by conversational agents as well as robots.

Computers are getting to be indispensable nowadays. A lot of us, however, do not think they are friendly. Intelligent robots will make a chance for us to use a computer in daily life. Though a number of robots with human features are already available. It is needed to adjust their behavior based on specific task to carry out. We will be introducing a robot for the college reception desk.

In this robot we'll be working on its face recognition capabilities and voice recognition as, the voice is a key element in face-to-face communication not only because it conveys the intended message, but also because it contains highly relevant cues for social interactions. Such cues point to speaker's gender, age, personality, emotional state or place of origin and enable socially intelligent individuals to easily decide who to like, who to trust and who to mate. Therefore, sensitivity to voice and language cues has always played a critical role along evolutionary history in human social groups. The pitch, along with the timbre, volume and speech rate is one of the most important voice characteristics. The pitch refers to how high or low the voice is and is determined by the fundamental frequency. Also face detection will be playing a crucial role to understand the body language of a person. Also for vocally handicapped people the robot can sense the sign language and body nature.

2. LITERATURE SURVEY

2.1 Voice based home automation system using Raspberry Pi (2018):-

From this paper we learnt that Python is the main programming language which is also default programming language provided by Raspberry Pi. Also we were enlightened how to interface Microphone and speaker as voice command and recognition will also be a crucial part of this paper.

2.2 Human robot interface for interactive receptionist system and way finding applications (2018):-

The Robot's virtual embodiment used in this work consists of an open source 3D model of a Physical Robot display on a 27 inch monitor.

2.3 The influence of voice pitch on evaluation of social robot receptionist (2011):-

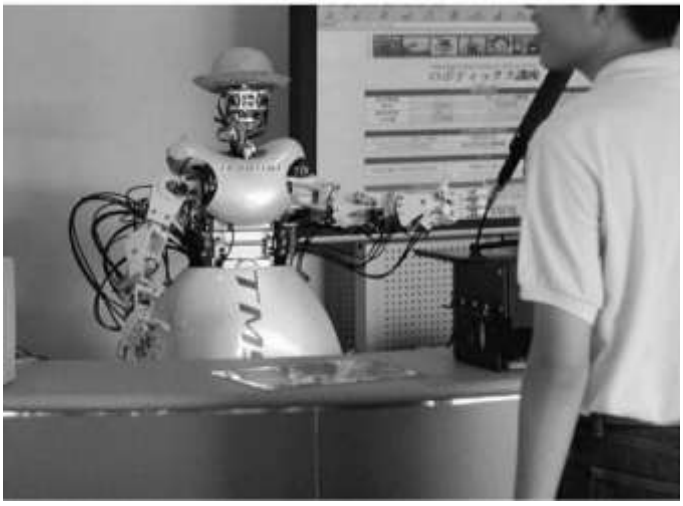
All the software of this robot runs on two pc boards: one Intel core i7 (2.8GHz) and one atom processor (1.2GHz). Average pitch value for male voices are 120 Hz and 210 for female voices.

2.4 Implementation of image processing on Raspberry Pi (2007):-

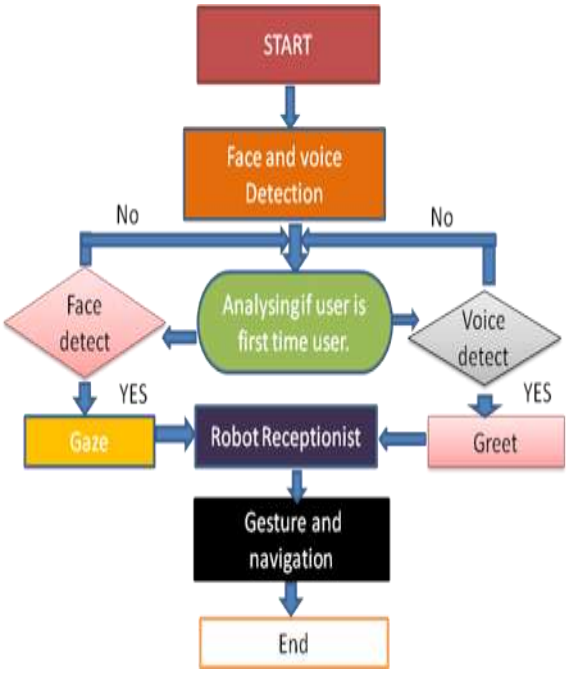
We learnt how to interface camera for face recognition on Raspberry Pi. Raspberry pi consist of camera slot interface (CSI) to interface the raspberry pi camera.

2.5 ASKA: - Receptionist robot with speech dialogue system (2002):-

This paper describes the speech related parts of Aska. Aska can recognize a user's question utterance and answer by its text to speech voice with its hands gesture and head.



3. METHODOLOGY



As the user will approach the Talking receptionist robot it will sense the presence of the user and detect the body language and sign languages if any made by the user. After the successful detection of the presence it will humbly greet the person and same will be displayed on a small LED screen. After that it face scans the person and look for the same in the database, if the person has visited before or is a first time user. If the user is a first time user it ask for their name and store it in the data base, if the user has already visited before it will try and recall them by their names for example if the name of the person already visited before is Mussa it'll ask him, "Hello Mussa sir how may I again help you."

After the successful completion of facial recognition it will take voice input through a dedicated microphone and also it will store the same in the database. Now suppose if the person asks for the principal's appointment the robot will send the respected personal a query message as well as the

face image captured for their appointment on their personal device, whether or not the concerned personnel is ready to spare their time they can send a text to the Robot and the same will be displayed on the small LED screen. If an appointment slot is allotted the robot will guide the visitor with directions verbally, also a short route map will be displayed on the LED screen. Thus it will help more more of the visitors.

4. DISCUSSION

In the future time the bot can also be modified to remember the users by their faces to recall later by their names and their unique voice pitch with the proper implementation of artificial intelligence and machine learning. They can also be made to point the directions to user using their hand gestures and even accompany and escort to the desired destination. Also work can be done on their facial expressions to convey the intended messages more clearly.

5. CONCLUSION

After successful completion of the project it is expected to work efficiently in the human environment and tackle the everyday visitors' queries. As the visitor will approach the robot it will face scan the visitor and will analyze if the user is a first time visitor or has visited before and help him/her accordingly. If the user is a first time user it will greet and ask queries and if he/she has visited before it will recall the face and ask, "How could I again help you?"It will take the users voice input through a microphone and help him with speech via. a speaker.

ACKNOWLEDGEMENT

This research has been supported by Jhulelal Institute of Technology and Tantransh solution.

REFERENCES

1. Harshada Rajput, Karuna Sawant, Dipika Shetty, Punit Shukla "Voice Based Home Automation System Using Raspberry Pi" International Research Journal of Engineering and Technology (IRJET) 2018

2. Fedeka Bazzano and Fabrizio "Human Robot Interfaces for interactive Receptionist systems and way finds Applications." Published on research gate 2018.

3. Gabriele Trovato, Josue G. Ramos, Helio Azevedo, Artemis Moroni, Silvia Magossi, Reid Simmons, Hiroyuki Ishii, and Atsuo Takanishi "A receptionist robot for brazilian people." Research Institute for Science and Engineering, Waseda University, and as part of the humanoid project at the Humanoid Robotics Institute, Waseda University published in 2017.

4. Andr Niculescu, Betsy van Dijk, Anton Nijholy "The Influence of voice pitch on the evaluation of a Social Robot Receptionist." International Conference on User Science and Engineering (i-USEr) published in 2011.

5. Minkyung Lee, Sara Kiesler, Jodi Forlizzi "Receptionist or information kiosk." National Science Foundation grants published in 2010.

6. Ryuichi Nisimura, Takashi Uchida, Akinobu Lee, Hiroshi Saruwatari, Kiyohiro Shikano "ASKA:- Receptionist Robot with speech dialogue system." Proceedings of the 2002 IEEE/RSJ International Conference on intelligent Robots and Systems EPFL, Lausanne, Switzerland published in 2002.