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TALKING RECEPTIONIST ROBOT

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Abstract –The receptionist job, consisting in providing useful indications to visitors in a public office, is one possible employment of social robots. The use of robots within the hospitality industry is becoming more common place, with uses ranging from artificially intelligent Chabot's, designed to assist with the customer service process, through to robot assistants, and 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, Chabot's 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 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. 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. We will be introducing a robot for the college reception desk.

2.LITERATURE SURVEY

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.

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

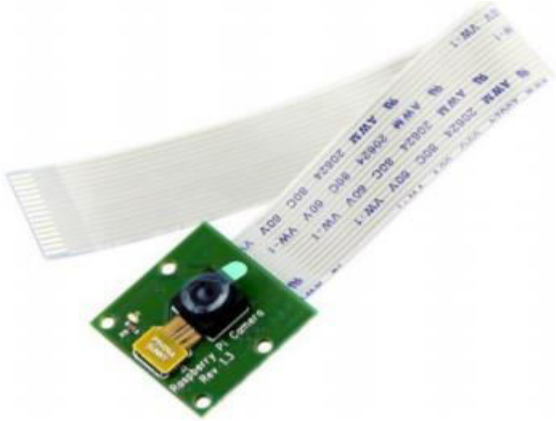
The Robot's virtual embodiment used in this work consists of an open source 3D model of a Physical Robot display on a 27 inch monitor.

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 intelatom processor (1.2GHz). Average pitch value for male voices are 120 Hz and 210 for female voices.

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

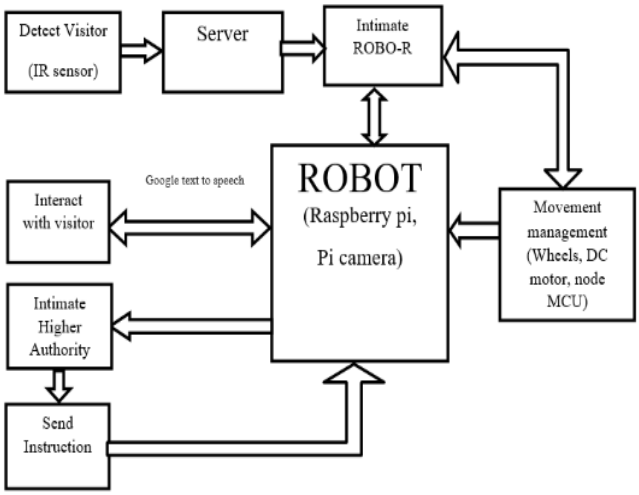
We learnt how to interface camera for face recognition on Raspberry Pi.Raspberry pi consist of camera slot interface (CSI) to interface the raspberry pi camera.



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



A. Detect Visitor

The robot is placed at the reception. When any client comes inside from entrance gate, the detector detects them and sends a signal to the ROBO-R via server. The ROBO-R after receiving the signal moves towards the entrance and welcomes the client.

B. Interaction

Once the visitor enters the office, ROBO-R makes them to sit and starts interacting with them. It takes the input from the client in a tablet or a screen attached to the ROBO-R. Based on client's query ROBO-R intimates the concerned person. Once the concerned person gets the notification in his android phone, he can send the instruction to ROBO-R. Based on the instruction from the concerned person, it conveys the message to the client. ROBO-R captures the image of all the client with their details and then transmits it to database.

C. Movement

Each department consist of different routes and each route contains several points. Based on the instruction, the ROBO-R selects a particular route and follows the same. It starts from the first point of the route and moves towards next point on the same route. It changes the direction from a point while moving towards the next point based on the predefined instruction.D.

D.Hardware

The hardware component used:

•**Detection sensors:** Responsible for capturing and used for face detection and face recognition. Here, we use pi camera as the acquisition device. And a IR sensor is used to detect human movements.

•**Processing Device:** The main computer itself, with raspberry pi 3, is responsible for running software that

allows the processing and movement of robot and to do the required tasks.

•**Display Devices**: they are used for displaying the contents for human viewing. It includes monitor or lcd screen.

E.Software

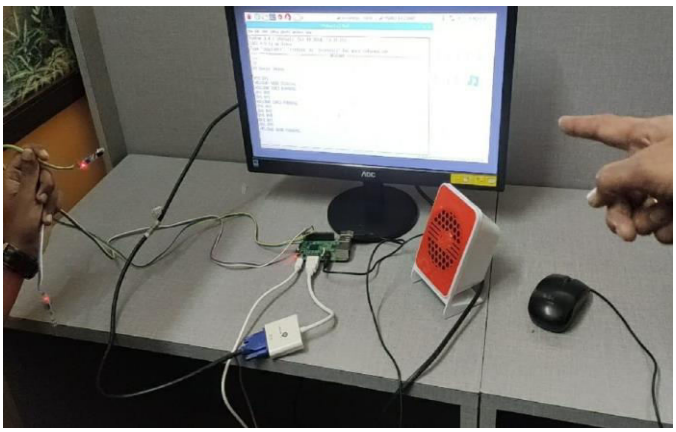
The software portion of robotic receptionist consists of python, Android studio, an openplatform to build android applications required for normal or complex purposes. ,PYTHON, Arduino IDE (integrated development environment) software is a cross-platform application used to write and upload programs to Arduino compatible boards.

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. RESULT & 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.



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