ACHEI ROBO –AN ARTIFICIAL INTELLIGENT ROBOT

Anil Antony * , Jisna Jaison T **, Jithin TV **, Mariya Raphael T**,
Muhammed Shabeer P A **, Nived O V **

*Assistant Professor *, B.tech Final Year Students ***

Department of Computer Science and Engineering, Jyothi Engineering College,Kerala,India

anil@jecc.ac.in *

**ABSTRACT- About 410 million people are visually challenged worldwide. our project is to setup ACHEI ROBO(Assistant, Companion, Home controller, Entertainer, Intelligent - Robot) is a robot which help the physicaly disabled people. The main features included is a robot with four wheeled home assistant robot ,a companion , home controlling specialities . It will detect human presence and give signal to its owners cell phone , and wish a warm welcome to the visitor . we can control robot using voice command
. It can check he temperature value , can sense leakage of gas,it can remind things . Robot collect data using camera. Sensor outside the home gave signal to the robot about human presence.And then gave that signal to the user through mobile .**

Keywords: **Assistant , Physicaly challenged, Companion ,Home Controller, Entertainer, Intelligent**

I.   INTRODUCTION

Computers can already solve problems in limited realms. First, the AI robot or computer gathers facts about a situation through sensors or human input. The computer system compares this input to stored data and will find what the information signifies. The computer runs through various possible actions and predicts which will be most affective and successful based on the collected data. So we are implementing this features to the common man's problem. About 410 million people are physicaly impaired worldwide. One of the problems they face in their daily life is during they are alone in their houses. our project is to setup ACHEI ROBO(Assistant, Companion, Home controller, Entertainer, Intelligent - Robot) is a robot which help the physicaly disabled people. The main features included is a robot with four wheeled home assistant robot ,a companion , home controlling specialities . It will detect human presence and give signal to its owners cell phone , and wish a warm welcome to the visitor . we can control robot using voice command . It can check

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II.   RELATED WORKS

The Autonomus-Navigation System for Mobile Robot. It giving the design and implementation of a navigation system, which could allow robots the autonomous operations. The navigation system consists of an obstacle detector using a line laser and a camera. In addition to that path planner using the very same information. The obstacle detection module uses both the intrinsic parameters of the camera and the plane of the laser shown in the coordinate system. The module is able to detect the obstacles quickly and accuratly. Between the found obstacles, it uses an enhanced version of cell decomposition algorithm for the planning of the path[1]. Human-Robot Interaction Based on the Level of Visual Focus of Attention propose a human-robot interaction approach for social robots that attracts and controls the attention of a target person depending on that user' current visual focus of attention. The system detects the persons current task (attention) and estimates the level by using the task related contextual cues and also with gaze pattern. The target persons attention. Then the robot detects the interest and willingness of the target person to interact with it. Depending on the level of interest of the target person, the robot generates an awareness and creates a communication channel with her/him. It also causes less disturbance and establishes effective eye contact[2]. A robot vision system to recognize both different target objects

that can be incorporated in robot programming by demonstration (robot PbD). Here considering pick-and-place operation as an example of robot PbD. Several objects are placed on a table without overlapping, and people pick objects to other place, one after another . if the robot can obtain initial information before learning from human demonstration, for example to recognize the target object and to estimate its pose, it helps robot to refine its following decision, such as selecting the gripper type or the grip angle. The developed vision system has advantage of interactive trainability with the help of given graphical user interface (GUI), in which the interpretable features can be easily selected by ordinary users and also propose a simple scale-invariant pose estimation method[3]. A novel collaborative Qlearning based path planning system using holonic multi agent system architecture, to use in autonomous mobile robot represented as a head-holon, for planning the optimal path. The mobile robot has to acheive the 2D grid randomly in order to update a local state action space Q-table relaying on a standalone decision. A global (Master) Q-table is then updating based on collaborative policy between head holons, in which every holon has a preset confidence degree used as a decisive parameter in the Q-learning equation as well [4]. Interactive Teaching and Experience Extraction for Learning about Objects and Robot Activities addresses human-robot interaction and experience gathering. The human-robot interaction includes not only instructor teaching activities but also robot activities to support appropriate feedback from the robot. Two simplified interfaces are implemented for the different types of instructions . The teach instruction, which triggers the robot to extract experiences which, both in the robot activity domain and in the perceptual domain, are extracted and stored in memory, and they are used as input data for learning methods. The functionalities described above are completely developed and integrated in a robot architecture [5]. A robotic system for home security enhancement is a novel vehicular Remote Exploration Surveillance Robot (RESBot), capable of monitoring in real time the

environment in response to real events. The interaction with the system is achieved through natural language. Results evaluation of the RESBot system revealed considerable improvement over conventional home security systems[6]. A robot system for healthcare facility environments shows Heterogeneous multiple robot systems that are capable of integrating with healthcare workflows and also easy to modify when workflow requirements change. The system consists of three subsystems : The role of the receptionist robot and the nurse assistant robot are to help the human receptionist and nurse. The healthcare robots upload and download patient information through the medical server and also it can provide data summaries to human care givers via a web interface[7]. The idea of ConBe Robot-The Development of Self-Perception and Expression in Face-to-Face Interaction giving The robot should correctly interpret a behaviour or mental expression of the human and if the robot has a good emotional insight of the human , it is the advantage for the robot perception. Here implement the significant techniques such as the human detection, face detection and recognition. Here study the facial expression recognition (FER) to understanding the human emotion and interacting by the robot expression in particular case. Here the robot interaction is based on the interest of a person that the robot can recognize with their emotional expression[8]. The Screen Feedback in Human-Robot Interaction: How to Enhance Robot Expressiveness, The feedback of a robot is a powerful means to establish smooth human-robot interaction (HRI). Here saying a user study to assess the applicability of a screen in a human-robot game-playing scenario. The screen was deployed for expressive shortcomings of a social robot because of its mechanical limitations of non-movable facial features. Here the participants played Rock-Paper-Scissors with the robot and the robot was programmed the right hand to show gestures. Half of the participants received facial expressions through a screen during the game, whereas the other half did not get screen feedback. Annotated the video-recorded interactions ,

Anil Antony , Jisna Jaison T, Jithin T V, Mariya Raphael T, Muhammed Shabeer P A , Nived O V

collected questionnaire and interview data to assess the applicability of the screen[9]. Optimized Assistive Human–Robot Interaction Using Reinforcement Learning is describing an intelligent human–robot interaction (HRI) system with adjustable robot behavior is presented. The proposed system assists the human operator to perform a given task with minimum workload demands and optimizes the overall human–robot system performance. The system consist of : a robot specific neuro-adaptive controller is designed in the inner loop and a task-specific outer-loop controller is designed to find the optimal parameters of the proposed robot impedance model to adjust the robot's dynamics to the operator skills and to minimize the tracking error. The problem of finding the optimal parameters of the robot impedance model is transformed into a linear quadratic regulator (LQR) problem[10].

III. PROPOSED SYSTEM

Our project aims on helping the physically disabled people .Its a robot with four wheeled home assistant robot, a companion, home controlling specialties. It will detect human presence and give signal to its owner's cell phone. we can control robot using voice command . It can check the temperature value , can sense leakage of gas, it can remind things . Robots collect data using camera. Sensor outside the home gave signal to the robot about human presence. And then gave that signal to the user through mobile as well as through voice response. Fig.1 shows dataflow diagram of the system. Fig 2 shows part of the robot. Fig 3 shows part of home controlling system.
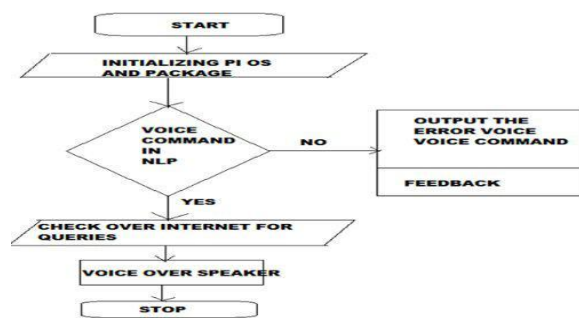

Fig. 1

A. NLP SYSTEM

NLP-(Natural Language Processing)system .Its development is challenging becuase computers traditionally require humans to speak to them in a programming language that is accurate, unambiguous and highly structured or perhaps through a limited number of clearly-enuciated voice commands .Current approaches of NLP are on the basis of machine learning,a type of artificial intelligence that examines and uses patterns in data to improve a programs own understanding. common NLP tasks in software programs today include Sentence segmentation ,part-of-speech tagging and parsing.

1. deep analytics
2. named entity extraction
3. Co-reference resolution

B. VOICE CONTROL

Voice Control using voice engine. It is a software subsystem for bidirectional audio communication , typically used as a part of a telecommunications system. It functions like a data pump for audio data.The voice engine is typically used in an embedded system and Voice engines handle the voice processing for an IP Phone system on a standard processor, compared to prior generations of systems which required dedicated and math – optimized digital signal processor chips. This voice engines are highly optimized software subsystems due to the mathematically complex signal processing required for voice filtering and speech coding.In this scenario user speaks into the microphone and microphone capture sound waves ,then digital signal signals generated. Text To

Anil Antony , Jisna Jaison T, Jithin T V, Mariya Raphael T, Muhammed Shabeer P A , Nived O V

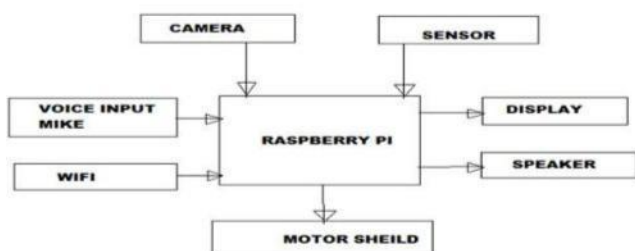Speech(TTS) converters also helps for better transformation performance.

Fig. 2

IV. FEATURES OF THE SYSTEM

- Can control using voice commands
- Robot can interact with users
- It can check temperature value
- It can sense leakage of gas
- It can act according to the situation
- It can remind things
- It can act as a home controller
- Security features are implementing using camera and sensor
- Can give accept or decline instruction through mobile
- Usable for physicaly disabled people
- interact with users
- Can gave warning for robbery attack to neighbours

V. IMPLEMENTATION

Proposed system is implemented as two parts. One for the camera and sensor module which is fixing outside the house, use to detect human presence based on the motion and temperature variation.If the human presence detects corresponding voice notification will give by the robot to the user, At the same time itself camera module outside the house will capture the image and send to the users cellphone. Second part is implemented in the robot . Controlling of robot is by voice commands, which includes movement of the robot,home controlling and interactions.Sensor values can be displayed in LCD display system.

VI. CONCLUSION AND FUTURE ENHANCEMENT

Its a robot which can be Usable for physicaly disabled people and be controlled by voice commands. Having specialities like detection of gas leakage, temperature value checking , security by implementation than existing ones. It not only helps the blinds but also emphasis self-dependence to physicaly disabled and aged people. Our system is more user friendly and is also open to future advancements.Can remind things act as a home controller .Security features are implementing using camera and sensor give accept or decline instruction through mobile ,Can gave warning for robbery attack to neighbours.future enhancement includes the integration of different sensor modules and a fully automated home which is controlled by robot

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