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# AI Enabled Human Interaction Robot Using Raspberry Pi

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**ABSTRACT:** In the last decade lot of researches on voice recognition systems was carried out by researcher, but accuracy of those systems are not good enough because of the randomness in the input. Since most of the voice recognition system were static and the process was pre-defined. To provide solution to the above problem, here we have introduced robot arm with intelligence is presented. The proposed system consists of microcomputer, alexa voice activate hardware with a controller. The proposed robot is capable of accepting the meaning of natural English language commands and also it can able to do mathematical calculations. The proposed system gives good accuracy even to the input in noisy environment and is more suitable real time application.

**KEYWORDS:** Voice, Recognition, Speech.

## I. INTRODUCTION

Since the commencement of the 21st century, technology has been developing at a rate that the world has noway seen before. New technologies in areas similar as virtual reality, artificial intelligence, big data, intelligent control, Internet of effects, and pall computing are each around us. Virtual reality as a branch of computer simulation, which developed so briskly, has been used in colorful fields similar as cultural, creation, medical wisdom, entertainment, aeronautics, space- fight, exigency drill and so on. The field of training is an operation area of computer simulation technology. To fulfill the nonstop adding of ultramodern training demand, computer simulation should give much further real and effective, intelligent and manipulative system. Still, we've plant it grueling for the traditional computer simulation to acclimatize to the demand of computer simulation for high speed Assiduity development. Therefore, the conception of virtual reality has combined with artificial intelligence to apply to computer simulation exploration came into being, which established a new area. Videlicet, to realize a kind of virtual reality system which is tasted real, adhering to practice, suitable for demand, with a thorough perception, interactive ubiquitous simulation, intelligent emulsion operation, has come the development direction of computer simulation technology in the unborn.It's revolutionary changes for styles and models of training and tutoring, when we have applied computer simulation system with virtual reality and combined with artificial intelligence to training field.

## II. PROPOSED SYSTEM

Artificial intelligence involves the following ideas like the two introductory ideas. First idea deals about the , studying the study processes of mortal beings. Second, it deals with representing those processes via machines (like computers, robots,etc.).[1]. AI is geste of a machine, which, if it's performed by a mortal being, will be called intelligent[2]. It makes machines smarter and further useful, and is less precious than natural intelligence. Natural language processing (NLP) refers to artificial intelligence styles of communicating with a computer in a natural language like English. The main ideal of a NLP is to understand input and initiate action. The stoner communicates with the operation through the applicable input device i.e. a microphone. The Recognizer converts the analog signal into digital signal for the speech processing. A sluice of textbook is generated after the processing. This source-language textbook becomes input to the Restatement Machine, which converts it to the target language textbook and the processing can be done through by the AI and the affair is audible to the natural English language.

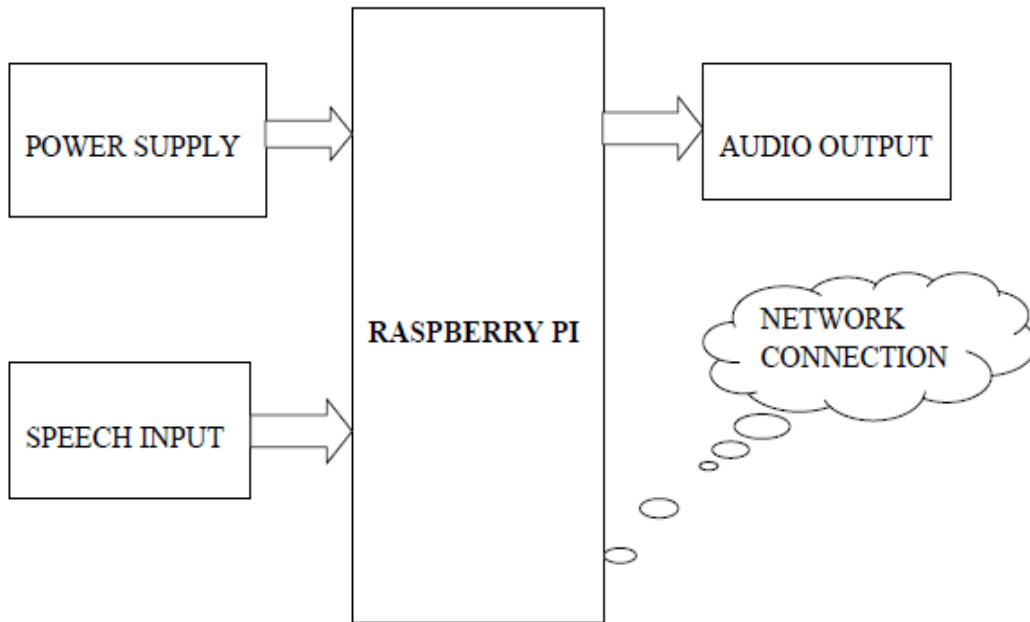


Fig.1 Block diagram

Several generations of Raspberry Pi have been released. All models feature a Broadcom system on a chip (SoC) with an integrated ARM compatible central processing unit (CPU) and on-chip graphics processing unit (GPU).

Processor speed ranges from 700 MHz to 1.2 GHz for the Pi 3; on-board memory ranges from 256 MB to 1 GB RAM. Secure Digital (SD) cards are used to store the operating system and program memory in either SDHC or Micro SDHC sizes. The boards have one to four USB ports. For video output, HDMI and composite video are supported, with a standard 3.5 mm phone jack for audio output. Lower-level output is provided by a number of GPIO pins which support common protocols like I<sup>2</sup>C. The first generation (Raspberry Pi 1 Model B) is released in February 2012, followed by the simpler and cheaper Model A. In 2014, the Foundation has released a board with an improved design, Raspberry Pi 1 Model B+. These boards are approximately credit-card sized and represent the standard mainline form-factor. Improved A+ and B+ models were released a year later. A "Compute Module" is released in April 2014 for embedded applications. The Raspberry Pi 2 which is added more RAM is released in February 2015

### III. RESULTS



Fig.2 Hardware setup

The above shows the setup of hardware connectivity of human interaction of an artificial intelligence in our project.

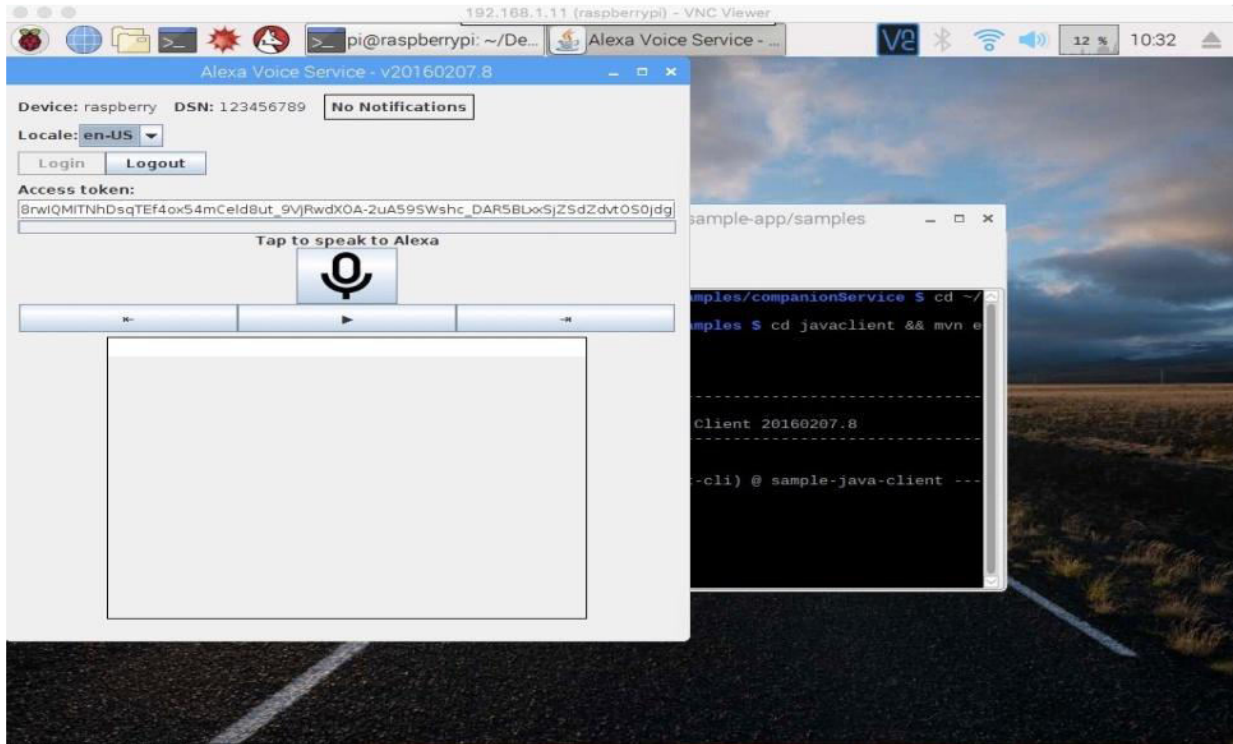


Fig 3. Software output

This figure 5.3 explains , to open the AVS screen. Tap and speech input is available.

#### IV. CONCLUSION

In this paper, an Alexa voice service app is used. It is developed by an Amazon web service. Based on the principle of an Artificial Intelligence (AI). This project is useful for future training system and blind people. Here input has given with the help of USB Mic to the Raspberry Pi 3 model B. Then the output comes from the speaker with the help of network connection in Raspberry Pi. This Alexa voice app is used to fetch a data from Google and it comes out from the speaker. It can be used for virtual reality training system, blind people and future development of Artificial Intelligence systems.

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