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Artificial Intelligence Based Jenny for Healthcare Applications

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***Abstract*: Artificial intelligence (AI) is becoming increasingly relevant in management and operations research. Intelligence is usually demarcated as the capacity to gather information and process it to comprehend challenging topics. Apple and Siri, Microsoft and Cortana, the current Google, and other markets are capable of executing platform-specific jobs that are constrained by the device itself. Every day, we witness people who are unable to perform their regular chores owing to illnesses or ailments that have rendered them bedridden or disabled. It has been evident that there is health care assistance existing in the field, which could be helpful for individuals, but they have certain constraints, such as platform-related requirements or constraints to executing activities. The proposed system aims to solve the platform dependency-based issue and is not confined for performing tasks on the device. We can develop Jenny software suchthat crippled, blind, pregnant women, the elderly, and the disabled, with exception of those who cannot talk, can use it. Using this application, you can acquire any information or data from the Internet. Furthermore, people who operate in the stock market can use this program to acquire stock market updates and news. People can use this program to remotely operate home appliances such as lights, fans, and so on. The suggested system's main goal is to give better and more efficient service to ordinary people in order to make their daily duties easier.**

***Keywords*: AI, Health care, Jenny, Knowledge representation, NLP PWM.**

1. Introduction

According to John McCarthy [1], the father of artificial intelligence, it is the "science and engineering of creating intelligent devices, particularly intelligent computer programs. Artificial intelligence is an approach to giving the command to the computer, a robot that can be skilled by the computer or it can be software that executes in an intelligent way the similar way the humans can do things, is a method of instructing a computer, a computer-controlled robot, or software to think intelligently in the same way that intelligent humans do. Human curiosity led him to ask "can a machine understand and behave like humans do?" while leveraging the potential of computer systems. Thus, the progress of AI began to achieve the goal of tosame kind of intelligence need to be done with computers what is realized and value in humans.

Artificial intelligence is applicable to variety of logical job wherein the machine must make a decision or decide the latter task with reference to the present task of the system. In simple terms, an artificial intelligence makes the system to function similarly as like that of a human brain, but in the case of machine or software demonstrates intelligence at the time of completing specific tasks. This kind of systems are known as intelligent systems or expert systems [1]. These systems have the ability to "think or reason" while producing the outputs.

The computer is needed to be capable of the succeeding:

- Natural Language Processing: This part allows computers for successfully interpret and communicate.
- Knowledge Representation: This part stores collected information through input devices.
- Automated Reasoning: This part analyses knowledge of the system and enables new interference to answer the questions.
- Fuzzy Logic: This part computes based on "degree of truth" rather than "true or false".

The issue with existing systems is that they require physical action to activate or modify them. These earlier systems will not be able to start, even though the fact that there is no physical interaction. This may be troublesome for users who are unable to physically interact, such as those who are bedridden or physically impaired, rendering these systems useless to them.

2. System Description

A. Proposed System

The suggested system aims to solve the platform independence issue and could not be confined for performing tasks inside the device. This technology is functional and capable of regulating electronic equipment.

JENNY's activities are as follows.

- It functions as an interactive personal assistant.
- It recognizes speech in UN-EN culture and integrates with Microsoft speech recognition.
- It features a Microsoft speech capability so that it may provide the output speech sentences.
- It is a large-scale proof of concept for Artificial Intelligence. JENNY can use Arduino to operate

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hardware circuits.

- It can be designed to do things like control.

3. Methodology

A. Hardware Implementation

The hardware implementation of this work in the sections is an Arduino-based system. This part will provide the schematic block diagram is depicted in Fig.1 and the same is described in the succeeding section. The schematic block diagram of the proposed system consists of various blocks which are (i) Arduino Nano (ii) HC05 Module(iii)Relay Module (iv) PWM (v) 16*2 LCD Display.

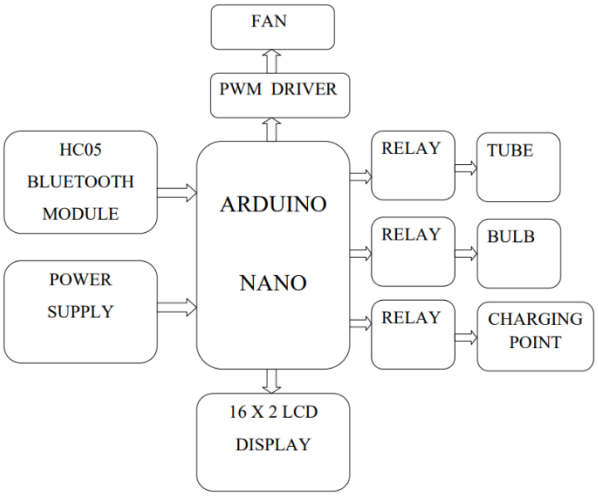

Fig. 1. Block diagram of proposed system

The Arduino Nano is to be designated as an open-source electronics platform. It consists of basic hardware and software. The Arduino board can read sensor lights, a finger on a button, messages, and other inputs and transform them into outputs such as messages to run a motor, turn on LEDs, and publish something online. It is possible to operate it by sending a series of instructions to the microcontroller on the board.

The HC 05 Module is a Simple Bluetooth SPP (Serial Port Protocol) module designed for putting in an obvious wi-fi serial connection. The Bluetooth V2.0 + EDR (Enhanced Data Rate) three MBPS modulated serial port Bluetooth module comes geared up with a 2.4GHz radio transceiver and baseband. It uses an external single-chip Bluetooth system CSR BlueCore 04 with CMOS (Complementary Metal Oxide Semiconductor) technology and AFH (Adaptive Frequency Hopping Function).

A relay segment is a relay board with four single pole double throw (SPDT) relays that are operated by a computer's USB Connection. This USB relay module's main purpose is to help in building robots and home automation applications. It can operate various electrical equipment such as household lights, DC motors, pneumatic cylinders, lasers, etc. one USB port is essential for each such board.

PWM is the most common way of controlling motor speed. The principal way of cooling electronic items is to adjust the fan speed in response to the temperature within the associated enclosure. To do this, adopt pulse width modulation (PWM) fan-speed management to electricity consumption, maximize fan duty, and minimize acoustics while having a wide operating speed range.

16*2 LCD Display - A liquid crystal is utilized to produce a viewable image on a 16*2 LCD. The liquid crystal display screen works by blocking light rather than emitting it.

B. Software Implementation

The Arduino IDE is refereed as an open-source tool developed by Arduino.cc and is utilized generally for writing, developing, and uploading code to nearly all Arduino modules. It is an official Arduino program that facilitates code compilation to the extent that even non-technical individuals may start learning. This personal assistant system is designed to make it easy for patients or any healthy people by giving voice commands only. The proposed system is developed based on artificial intelligence, appropriate hardware, and necessary software. The recommended system may operate home appliances, any.exe programs in windows, a browser to obtain whatsoever from the world wide web, and further tasks based on the criteria. The screen will show all verbal orders given to the computer. Personal assistance can complete any assignments in seconds. The instructions are as follows and the proposed system implementation using Android is illustrated in Fig. 2. The proposed system is implemented in Windows is depicted in Fig. 3.

"Turn ON All"

- "Turn ON/OFF Lamp"
- "Turn ON/OFF Tube"
- "Turn ON/OFF Charger"
- "Turn ON/OFF Fan"
- "Increase/Decrease Fan Speed"

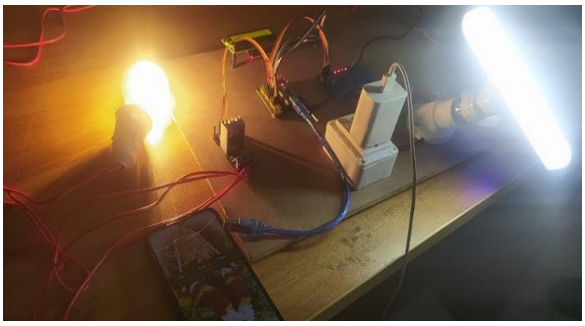

Fig. 2. Proposed system implementation using Android

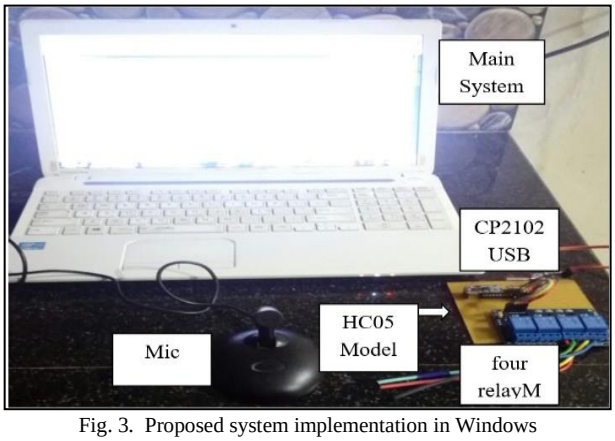

Fig. 3. Proposed system implementation in Windows

4. Results and Discussion

The observations on various performance parameters of the Existing System and Proposed System were dealt. It has been found that the proposed system has both hardware and software in control, internet access is necessary for browsing, customization, industrial automation, and hardware control can able to do with the least cost compared to other Apple Siri, Windows Cortana, OK Google.

There are a variety of technologies that could be utilized to implement AI and improve working situations. AI takes a widespread application and a good system., which may be the prime emphasis of this effort. Jenny can execute things with voice commands in English. The arrangement consists of the mic and hence the speaker which is utilized for voice command. The victimization language and communication process interpret and output voice commands. The system will perform activities such as controlling home appliances such as lights, fans, and so on with Arduino board and relay boards, governing any .exe files from the window, accessing information from the internet browsers, and other works as required. Because it solves the shortcomings of present methods of physical engagement to begin the system, the suggested approach is useful, particularly for the physically disabled and informed individuals.

5. Conclusion

The proposed system's major purpose is to give better and more economical service to traditional and underprivileged people in order to make their daily responsibilities easier and thus save time. The system provided is entirely efficient. The proposed technology would be enhanced to work in any language. It can also use the Internet of Things (IoT) present in the proposed system can give Jenny a voice command to send an SOS to a loved one. People involved in the stock market could use data mining to get information about stock market updates and news. The system creates security credentials for the user. If any individual desires to protect any own important data or files from scams, they can authenticate with their own voice.

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