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Humanoid Robot with Voice Recognition and Automatic Spraying Mechanism

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ABSTRACT

Humanoid Robot is a robot molded as a human. A Humanoid robot is utilized in various fields, for example, innovative work device, diversion and for assignments that are dangerous to be finished with genuine individuals so humanoid robots are an apparatus for human extravagance and security. The Movement of the humanoid robot is done dependent on AT Mega arrangement microcontroller and we make portable robot whose movements can be constrained by the client by providing explicit voice orders. The discourse is gotten by a receiver and handled by the voice module. At the point when an order for the robot is perceived, at that point voice module sends an order message to the robot's regulator. Furthermore, here we are more worried about the pandemic called Covid 19 which is an intense issue so we are utilizing two extra exercises, for example, we are utilizing UVC cylinders to clean our encompassing or our room from such a hurtful infections and furthermore utilizing a programmed neutering component by which we can purify our encompassing.

Keywords: UV-C, Sanitization, Actuations speech recognition, Algorithm representation.

INTRODUCTION

A robot like human is automation machine with its hard body shape worked to take after and recreate all the elements of body. The work might be used for practical purposes such as communication with automated devices as well as their conditions for different trial purposes examples can be bipedal motion or for different purposes. Humanoid will have same structure as human which consists of one head, two arms and to legs. Humanoid structure may vary which shows just the piece of body, for instance from abdomen up [1-2].

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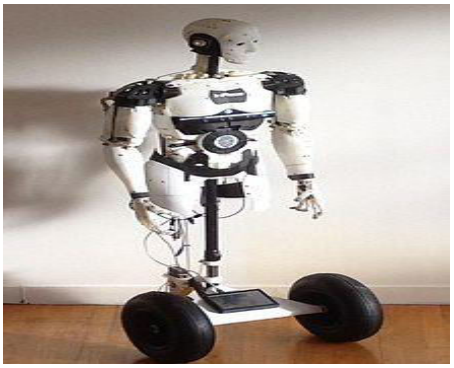

Fig.1: UV-C based humanoid robot with automatic spraying mechanism [1]

For research have been done on humanoid robots and few robots are successful in developing taste and some of the features like facial expressions, eyes mouths and lips. It tends to be utilized for as we are appending the showering system in this robot to battle against COVID 19 that our robot will be utilized for cleaning the encompassing and utilizing UV-C tube that will assist us with sanitizing our rooms.

The robot can naturally watch for sanitization and purification in the foreordained zone. This robot is equipped for self-sufficient activity and programmed showering component accordingly successfully guaranteeing the murdering of infections in various manners by utilizing of light wave and sanitizer splashing system, UV sanitization and cleansing robot eliminates germs in nature by breaking down their DNA structures, therefore forestalling and lessening the spread of infections, microscopic organisms and other unsafe microorganisms.

A humanoid robot is called machin3because it can adapt to changes in its environment or inside itself while still achieving its goal. This is the primary distinction between humanoids and other robots, such as industrial robots, which are designed to perform tasks in highly organized environments. Humanoids use the same basic components as other mechanical robots: Actuations and Sensing. [4]. In 1928, the electric robot ERIC debuts at a Model Engineering Society presentation. ERIC, an electric robot, opens a demonstration of the Society of Model Engineers at the Royal Horticultural Lobby in London in 1928 and embarks on a journey around the world. The "three laws of mechanical technology" are described by ISAAC ASIMOV in 1941-42. NORBERT WIENER establishes the robotics principles in 1948 D.E. Whitney's article "Settled movement rate control of controllers and human prosthesis" is published in 1969. D.E. Whitney's article "Settled movement rate control of controllers and human prosthesis" is first published in 1969. The main dynamic human exoskeleton was designed by Miomir Vukobratovi and his colleagues at Mihajlo Pupin Institute in 1972.Miomir Vukobratovi and his colleagues at the Mihajlo Pupin Institute designed the first dynamic human exoskeleton in 1972 D.E. Whitney's work "Settled movement rate regulation of controllers and human prosthesis" is published in 1969. Miomir Vukobratovi and his colleagues at the Mihajlo Pupin Institute built the first dynamic human exoskeleton in 1972. Wabot-1 is built in Tokyo's Waseda University in 1973. It possessed the ability to walk, converse with a person in Japanese, and calculate separations and bears. Now a advanced robots based on multifunctioning and performance based are being tried by giant

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companies and we found advancement in robot industry and so on.

PROPOSED METHODOLOGY

In this approach we are providing all the orders through voice by utilizing voice acknowledgment module and our robot has a mic by which we are sending signal as sound wave which is enhanced by an intensifier TDA 2050 which is the best speaker of sound by which we can communicate signal from beneficiary to sender end and this correspondence is a full duplex correspondence wherein we are imparting and sending the sign from both the end and PC programming system or equipment device that can understand human speech is known as voice recognition [2].

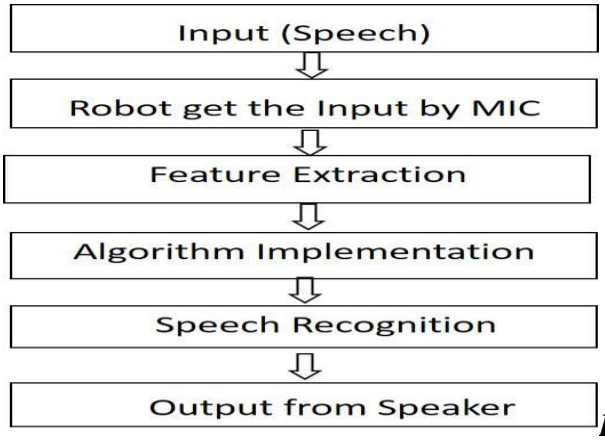

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Fig.2: Working Methodology of Humanoid robot using VR module.

The Voice recognition is typically used to operate a device, issue commands, or compose without the need of a keyboard, mouse, or other controls. This is currently done on a computer using ASR (automated speech recognition) programming and furthermore we worried about how to disinfect our Hospitals, office, study halls, research centers, and in any event, for our encompassing by utilizing a sterilization showering instrument which we are utilizing to make this robot given beneath is a strategy by which we are communicating a signs utilizing VR module.

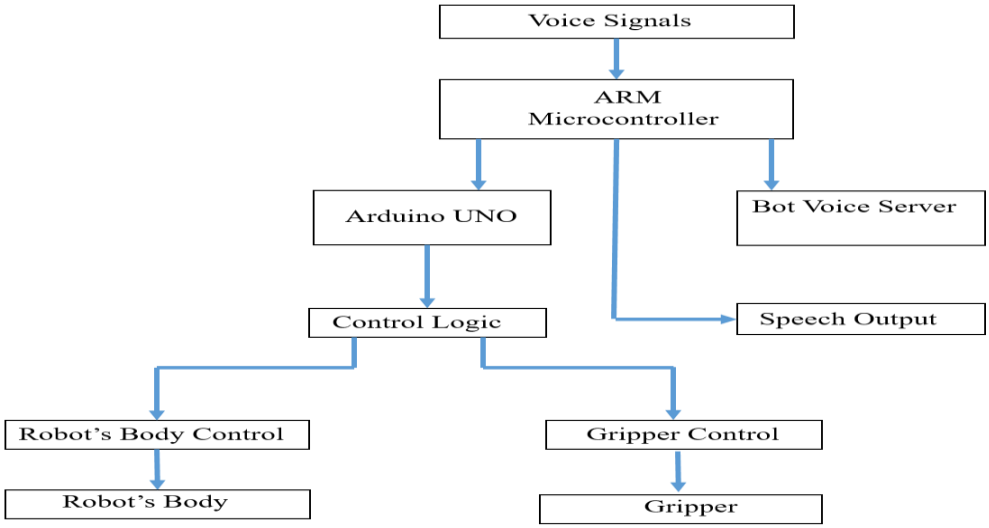

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Fig .3: Flowchart for Module

Also, the yield of the Speaker may result the name of the work which he will perform like if our Robot is sanitizing disinfectant than it says that "performing sterilization" and when we communicate that to switch UV-C tube then it will say that "performing cleansing

The Robot voice has a gripper which is utilized to pick up and drops the articles. A PC-interfaced minimal effort automated arm was built up that could be incorporated with a mechanical arm, utilized for light weight lifting applications. Another mechanical arm was created which had exceptional applications for the genuinely tested individuals. A mechanical arm was structured so that it could be controlled utilizing human mind .An automated arm was planned which could penetrate boreholes and in blocked urban regions with viability

The investigations have indicated that discourse is the fastest type of correspondence with numerous fields of utilizations

- In-vehicle frameworks.
- Health Care.
- Military.
- Education.
- Intelligent structures.

Existing framework is about just telling the robot which comprehends the orders and perform activities. We need to step forward and include a discourse synthesizer which produces discourse which is then intensified and given to a speaker beam.

ABOUT UV-C TUBE

In this section, we will study about UV-C TUBE with different materials and on the basis of that, we carried comparative analysis Ultraviolet light is part of the light wave spectrum, UV-C, (100 nm to 280 nm)

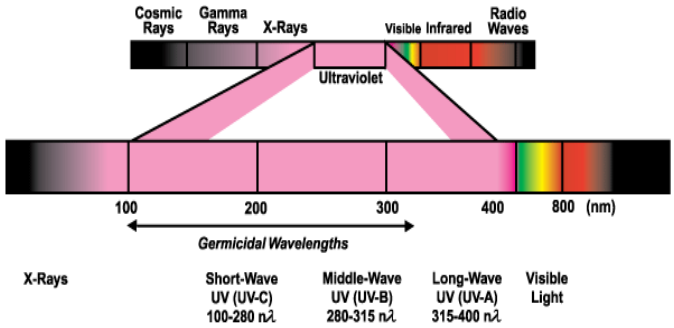

Fig.3: Wavelength diagram

UV-C light is germicidal – i.e., it deactivates the DNA of microscopic organisms, infection and different microorganisms and in this way annihilates their capacity to increase and cause sickness. In particular, UV-C light makes harm the nucleic corrosive of microorganisms by

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shaping covalent connections between certain contiguous bases in the DNA. The development of such bonds keeps the DNA from being unfastened for replication, and the life form can't duplicate. Actually, when the creature attempts to recreate, it bites the dust.

Uses of germicidal ultraviolet

Ultraviolet technology is a non-chemical way to deal with sterilization. In this technique for cleansing, nothing is included which makes this cycle straightforward, cheap and requires low support. Bright purifiers use germicidal lights that are structured and determined to deliver a specific measurement of bright (typically in any event 16,000 microwatt seconds for each square centimeter however numerous units really have a lot higher dose.) The rule of configuration depends on a result of time and power – you should have a specific measure of both for an effective plan.

Drinking Water

Drinking Installs of water sinks and water vending machines Recreational boats and vehicles water wells, farms, trailer parks, swimming pools, and hot tubs hotels and schools aquarium, Processing Food Soft drinks, fruit drinks, and juices from breweries and wineries dairy processing liquid sweeteners, oils for food, and sugars lubricants made of water Medical medical laboratories that produce pharmaceuticals, hospitals, clinics and animal husbandry Industries Laundry water recycling pond and lake reclamation electronic production

ULTRAVIOLET PURIFIERS: HOW DO THEY WORK?

There Atlantic Ultraviolet Corporation's purifier units contain at least one germicidal bright lamps. Germicidal Lamps are shortwave, low weight tubes that produce bright frequencies deadly to microorganisms. Roughly 95% of the bright vitality produced from germicidal lights is at 254 nanometers, the locale of germicidal viability generally damaging to microscopic organisms, form and infection. Subsequently, the water or the air that goes through the chamber is presented to the germicidal UV light and the hereditary material of the microorganism is deactivated, which keeping them from multiplication and delivering them innocuous.

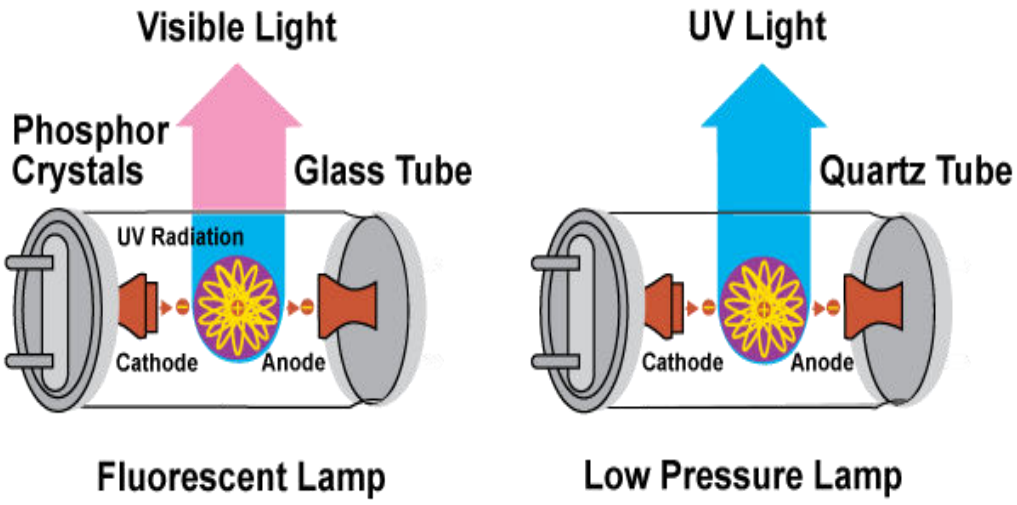

Fig.4: Working Principle of UV-C Lamp

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SPARAYING MECHANISM

Lead The robotized sterilizing device can be utilized for cleaning inside surfaces of traveler vehicles including seats and different touch points through a splash of disinfectant on these surfaces. This device can be utilized to purify the seats of vehicles, taxis, ambulances, merchandise vans, transports, and flights, prepares, and could even disinfect lifts, and so forth. The cases made for the contraption and its essential component do highlight a promising technique for sanitization. Notwithstanding, we'd prefer to bring up that no more data is presently accessible about whether the splash has been tried and is in reality viable.

The following are some of the contraption's features:

- •If an unauthorized disinfectant or fluid is used in the device, it will not operate.
- •It will only operate if vehicle/lift is completely motionless.
- •It will only work for the suggested/ desired specified term (seconds/minutes).
- •It will not function if the pressure in the sprayer is too high or too low, in addition to the brief 10% or as recommended

If a traveler temperature records greater than recommended or predetermined when seated in any seat, it is likely tied to the Infrared temperature recorder, this contraption won't work and a warning will be sent to driver/administrators helpdesk for fundamental bearings.

ALGORITHM AND PROGRAMING

As we are utilizing two small scale regulators, one for correspondence between the Robot voice and server and another for the development of the robot. VR Module is utilized for correspondence and AT Mega 328, 128, 2560 for development activity. The calculation for VR Module i.e., to build up and speak with server is given in The fundamental activity here is only in the event that server is accessible or is free, at that point, robot begins gathering the discourse signals through amplifier and sends it to the server. Though when the server is occupied it trusts that the server will impart any information or discourse signs that are blended in the server. The got information is by and large in twofold arrangement which determines which pin to be high or low. In the event that the information is a discourse signal, at that point VR Module changes over the electrical sign into simple structure and advances it to intensifier, which is later on enhanced and sent to speaker. Here the association between the two small scale regulators is a port to port association. Each pin of VR Module is associated with a particular pin of Arduino Uno. In the event that a specific port is made high in Due, the equivalent is conveyed to Uno which plays out a particular capacity which is distributed to it. Calculation of VR Module code another small scale regulator that is utilized in this task is AT Mega 328, which deals with all the development activities. We plan the code so that every development activity is done when a particular pin is dynamic and that is given by VR Module

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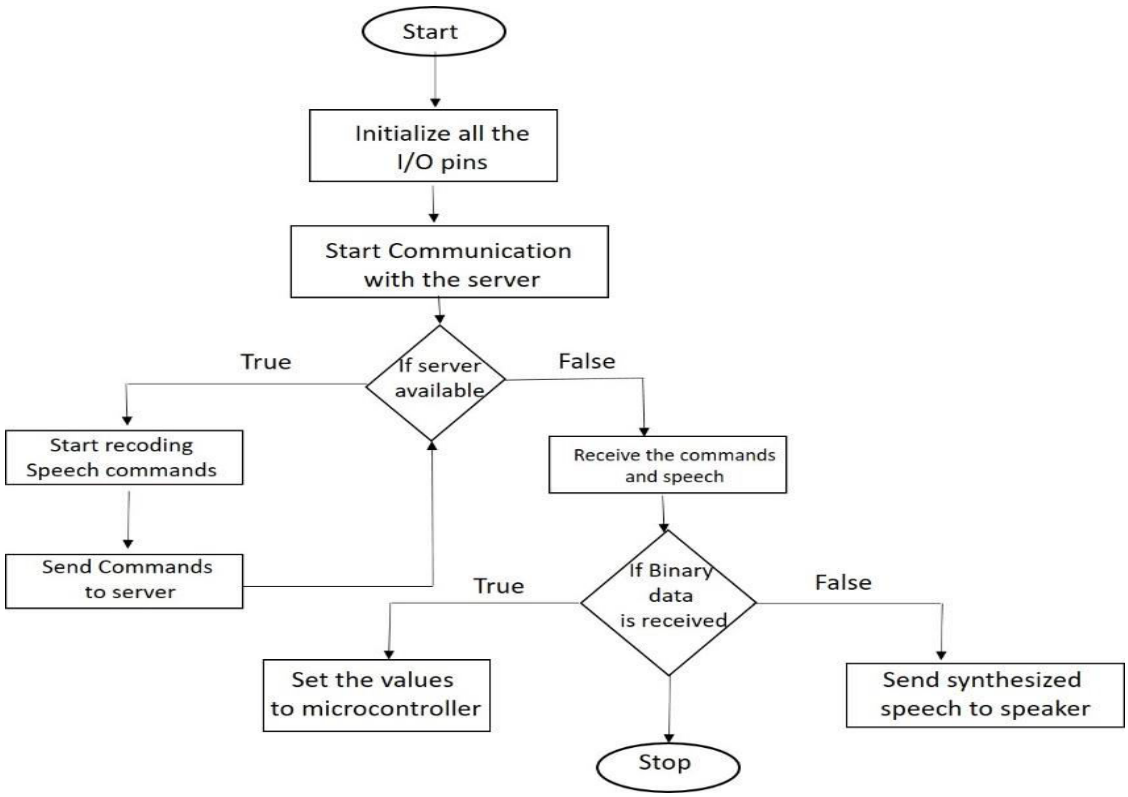

Fig.5: Flowchart of Algorithm and Coding using VR Module

CONCLUSION

Voice control for a home right hand robot is created in this paper. The voice orders are prepared continuously, utilizing a disconnected server. The discourse signal orders are straightforwardly imparted to the server over a wired system. The individual collaborator robot is designed on a miniature regulator- based stage and is capable of detecting its immediate surroundings. The results of the underlying studies are used to complete the execution assessment in an empowering manner. Potential upgrades are additionally talked about towards possible applications in home, medical clinics, vehicle frameworks and businesses.

Another set of areas that can be researched is how the robot is affected by the distance between its mouth and amplifier, how it is presented, and how the noise of the audience affects how the message is conveyed.. The articulation of the speaker doesn't influence the activity of the robot as the voice orders are prepared utilizing a cloud server which works regardless of the emphasize of the speaker. Utilizing sustainable wellspring of vitality for the working of the robot would not just enhance the expense of the robot yet would likewise end up being eco-accommodating. Sunlight based cells can be a potential wellspring of vitality that can be utilized. The mechanical collaborator created has potential applications extending from substance enterprises to agreeable situation inside homes. This paper ought to be useful in exhibiting a server based application in building up a voice-controlled mechanical assistant and all the further working of our humanoid robot is done and this system is such a great amount of helpful for the pandemic like Covid 19 which is an intense issue these days.

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