Study On Solar Robot

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ABSTRACT

Robots are now becoming a part of our daily life and acting ordinary tasks much more professionally and swiftly. Robotics as a subdivision of engineering deals with proposal, structure, procedure, and submission of robots. Their mobility is as efficient as the control signal. Humans can achieve extremely accurate tasks without much effort. This project objective at giving the same mobility to the robotic arm so that it can perform tasks precisely in an environment not accessible or suitable for humans, remotely using solar energy source and the RF pair to control the robot wirelessly .The automated arm so far composed can lift the items, with a specific end goal to broaden its capacity, further developed a framework to be utilized. We infer that the proposed framework works legitimately as the order is given. The proposed framework works on Keys, according to the key is squeezed the separate piece of the arms move. The Electronic Circuit, to which the keys are associated, comprises of Arduino and RF transmitter. On squeezing specific key, we see the consequential progress on the framework. Arduino recommends bearing development to the engine and mechanical arm conferring to the information got by Arduino by means of RF recipient. A sustainable power source is exploited for control up to the Robot arm unit; sun-powered board changes over daylight into electrical vitality.

Keyword : - RF pair, AVR, Haptic, Wireless Hand.

1. INTRODUCTION

A robot is usually an electro-mechanical appliance that is guided by means of computer and electronic programming. Robots can be autonomous, semi-autonomous or remotely controlled. Robots can be used for a wide variation of tasks ranging from household tasks, industrial applications to investigation of outer space. Nowadays, advanced robots consist of hardware laterally with software. The software offers the required indication of intelligence to direct the mechanical parts to do the task. Humans have the extraordinary capability of haptic – a sense of touch. Our system exploits this feature to afford precise control signals to mechanical robotic arm wirelessly, giving the ability to accomplish even very delicate tasks without much determination. The user refers charge about the course of development of the robot whether the robot ought to go ahead, invert or stop and so on or about the rebellion and up/down development of the Robotic arm for pick and place. These summonses are exchanged to the Arduino board by means of RF transmitter. Arduino recommends heading of development to the engine and automated arm conferring to the information got by Arduino by means of RF recipient. A sustainable power source is utilized to control up to the Robot arm unit; sun based board changes over daylight into electrical vitality. L293D is an engine driver IC, which is utilized to drive engines as most microchips work at low voltages and require a little measure of ebb and flow to work while the engines require a generally higher voltage and ebb and flow. In this manner, current can't be provided to the engines from the chip.

2. LITERATURE SURVEY

[1] The robotic arm so far designed is able to lift the objects. In order to extend its capability, more advanced tools and material with the capacity to withhold the heavyweight objects are to be used, which is then applicable in war front and used as a redeemer at several places where there is a need and also in industrial areas, military, and so on.

ADVANTAGES

- Can be applied in remote rural areas so as to carry out operations.
- Can be used in military areas where highly skilled doctors may not be present.

DISADVANTAGES

- Debugging issues of these are complicated since they involve real-time data analysis.
- Auxiliary controls are required to move the workspace of the device to a new location.

APPLICATIONS

- lift the objects
- capacity to withhold the heavyweight objects

[2] The proposed framework is used to perceive the human motion, large potential for applications in basic fields and in addition to comfortable delights. Haptic gadgets must be littler so they are lighter, less difficult and simpler to utilize. Haptic innovation permits intuitiveness progressively with virtual items.

ADVANTAGES

- It allows interactivity in real-time with virtual objects, Machines don't get tired.
- They don't close their eyes. They don't hide under trees when it rains and they don't talk to their buddies.

DISADVANTAGES

- Robots are not as suitable for making complicated decisions.
- Links in telemedicine must have 0% fault rates for extended periods of time.

APPLICATIONS

- Areas, where highly skilled doctors may not be applied in remote rural areas so as to carry out operations.
- Can be used in military

[3] A safeguard observation robot was composed in the venture. Different regions of uses incorporate Space Exploration, dangerous Area Maintenance like Nuclear Power Reactors Mining, in clinics to Maintain Sterile Environment, Industrial Automated Equipment Carriers.

ADVANTAGES

- Precise control of tools during operation.
- Reduction of no. of peoples needed in operation room.

DISADVANTAGES

- Auxiliary controls are required to move the workspace of the device to a new location.
- The precision of touch requires a lot of advanced design.

APPLICATIONS

- Space Exploration, Hazardous Area Maintenance like Nuclear Power Reactors Mining
- In hospitals to Maintain Sterile Environment

[4]A. Arunraja Speech Recognition (SR) technology gives the investigator the chance to enhance Natural language (NL) statement with the robot in the normal and smooth way. The working field of the Service Robot is in the society help the people in every day's life and so it should be controlled by the human.

ADVANTAGES

- In the relevance of bomb disposal, the human life is not at risk.
- It allows interactivity in real-time with virtual objects

DISADVANTAGES

- Involve real-time Debugging issues of these are complicated since they data analysis.

APPLICATIONS

- Home Entertainment and Control
- Wireless sensor networks

[5] There are unendingly numerous conceivable robot programs, yet they all fall along a very much characterized range of control The precision and proficiency of surgeries have enhanced extraordinarily in view of the utilization of apply autonomy in the field. In this way, the control of an automated arm was accomplished remotely utilizing flex sensor given by the client.

ADVANTAGES

- In an application like bomb disposal, the human life is not at risk.
- It allows interactivity in real-time with the virtual object.

DISADVANTAGES

- The range of robot is controlled by the range of ZigBee applications

APPLICATIONS

- Large potential for applications in critical fields as well as for leisurely pleasures.
- Industrial Automated Equipment Carriers

[6] The fingers inside the mechanical arm moving as we fix more than a couple of flex sensors in the glove. As an outcome, with the guide of utilizing mounting five flex sensors on the individual fingers of the glove, each finger of the automated arm will likewise be overseen independently giving a higher measure of movement and an additional number of blends with the fingers.

ADVANTAGES

- Simple gestures are used to control the robotic arm
- Range increased by 30-40 meters because of use antenna.

DISADVANTAGES

- The interfaces are basically not portable and they have a limited workspace.

APPLICATIONS

- Automation, a gadget for physically handicapped people.
- The precise design can also be used in medical field for a surgical operation on remote rural areas

[7] The proposed framework works on Mobile Phone Keypad, as the tone of the catch is created the individual piece of the arms move. On squeezing specific key on the portable, we see the resultant development of the system. The DTMF Tone programming is required to work the Robotic Arm utilizing Mobile Phone Using this framework, a non-master robot software engineer can control a robot rapidly and normally.

ADVANTAGES

- Non-expert robot programmer can also control a robot quickly and the low price and short set-up time.

DISADVANTAGES

- Limited numbers of command processed by DTMF.

APPLICATIONS

- Industrial areas, military, war front
- Used as a rescuer at several places where there is a need.

[8]The reason for the venture is to control a Robotic Arm utilizing RF-FSK and 8051. Robots will require more as opposed to less knowledge, and will along these lines significantly affect our general public later on as innovation extends to new skylines.

ADVANTAGES

- high degrees of repeatability
- precision
- reliability.

DISADVANTAGES

- Low speed
- high power consumption.

APPLICATIONS

- Shuttle Robot Arm.
- Satellite deployment and retrieval.

[9] Motion Controlled Robotic hand is a framework which helps to control the Robotic turn continuously, as per the signal of the administrator. This will be utilized to control the dangerous circumstance from a remote separation. Such framework can be utilized to deal with basic circumstances if planned exactly.

ADVANTAGES

- It can be used in remote areas to carry out the different operation.
- It allows real-time operation between robotic hand and operator.

DISADVANTAGES

- Much complex and advanced design requires to precise control over tool.
- Remote operations of the robotic hand depend on a range of RF transceiver.

APPLICATIONS

- it can be used in manufacturing industries for a certain operation which cannot be performing by pre-programmed robots because it is manually operated.

[10]The paper talked about an equipment and the programming co outline of mechanical arm controller utilizing four servomotors employing small-scale controller. Smaller scale controller programming should be possible without lifting a finger to suit the necessities. Dissimilar to frameworks which utilize FPGA based control.

ADVANTAGES

- programs can be flexibly modified to suit the necessary drive control of the servo motor
- It allows grasping of irregular shape objects

DISADVANTAGES

- It is not suitable for making a complicated decision.

APPLICATIONS

- It can be used in military operation for bomb diffusion.

It can be used in chemical plants to work over hazardous chemical

3. CONCLUSION

The robotic arm so far designed is able to lift the objects, in demand to extend its ability, more advanced system can be used. We conclude that the proposed system functions properly as the command is provided. The proposed system operates on Keys, as per the key is pressed the respective part of the arms move. The Electronic Circuit, to which the keys are connected, consists of an Arduino and RF transmitter. On pressing a particular key, we see the resultant movement on the system. Arduino tells the direction of movement of the motor and robotic arm as per the data received by Arduino via RF receiver. A renewable energy source is used to power up the Robot arm unit; solar panel converts sunlight into electrical energy. It can be used in military applications like bomb disposal, it allows interactivity in real-time with virtual objects, accurate control of tools during development, reduction in a number of peoples need for operation. Although the system is best suited for a different application it suffers from some limitations like complication in debugging issues as they involve real-time data analysis, the Full working of the robot is dependent on the range of RF transceiver.

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