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Spy Robot Using Microcontroller

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ABSTRACT:A robot is usually an electro-mechanical machine that guided by computer and electronic programming.Many robots have been built for manufacturing purpose and can be found in factories around the world.Designing of the latest robot which can be controlling using an android mobile.In developing the remote buttons in the android app can be control the robot motion.Android Bluetooth enables phones and Bluetooth module HC-06 and communication among Bluetooth devices.It is concluded that smart living will gradually turn into are reality that consumer can control their home remote and wirelessly.According to commands received from android the robot motion can be controlled.In IP web camera interface will also be through wireless communication for need to have a receiver installed in mobile.so both the camera view and the navigation of the camera can happen simultaneously from pc using Bluetooth interface.

KEYWORDS: Compact,robot ,spying ,camera control,surveillance

I.INTRODUCTION

Robotics study becomes an extremely large field because it contains a huge amount of different technologies, but I have covered the most important areas.In discuss about some automation system and different types of automation.we need robots in our life. What kind of advantages we can receive from robots by viewing robot applications and the quality that can be provided by comparison to human work. The typical industrial robot which looks like a human arm has six different joints like an elbow joint, a shoulder joint and a rest joint. These joints are powered by a servo motor or a hydraulic motor or whatever type of motor. These powered motor joints enable robot to reach objects in several ways. The amount of joint space motor drive is depending on the nature of a robot task. The more sophisticated the job the more motions we require so extramotor drive is need. All these six motor drives need to be controlled to achieve specific task and sometimes we do not need to use all of them so we eliminate motor joint depending on the task requirements.

II.OBJECTIVE

The objective of a spy robot project can vary depending on its specific design and purpose. Generally speaking, the objective of a spy robot project is to create a robot that can operate in environments where human presence is not possible or desirable, and collect information or data without being detected.
Some common objectives of a spy robot project includeSurveillance: Creating a robot that can capture visual or auditory data from a specific location, such as a building or a public space, without being detected.
Reconnaissance: Designing a robot that can navigate through hazardous or dangerous environments, such as disaster zones or war zones, and provide real-time information about the situation.
Industrial inspections: Developing a robot that can conduct inspections in hazardous environments, such as nuclear power plants or oil rigs, and gather information about the state of the equipment or facility.
Scientific research: Creating a robot that can collect data and samples in remote or inaccessible locations, such as deep sea or outer space, to advance scientific research.

III. LITERATURE REVIEW

Design and development of a miniature spy robot" by S. Prakash, et al. This paper describes the design and development of a small, remotely controlled spy robot that can be used for surveillance in sensitive areas. The robot has a camera, microphone, and can transmit data wirelessly."Design of a robot for surveillance and reconnaissance" by D. Dheeraj Kumar, et al. This paper presents the design and development of a robot that can be used for surveillance and reconnaissance in various environments. The robot is equipped with a camera, GPS, and sensors to detect obstacles.Development of a snake-like robot for reconnaissance" by H. Kim, et al. This paper describes the development of a snake-like robot that can navigate through narrow spaces and gather data for reconnaissance purposes.

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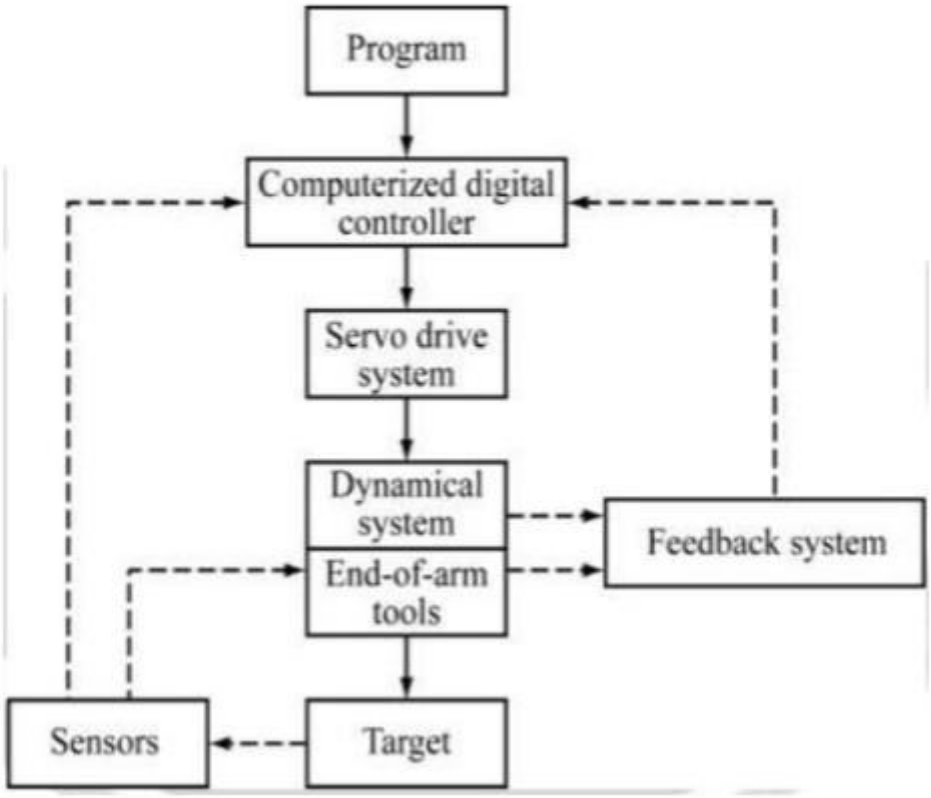
The robot is equipped with a camera and can move in multiple directions."Design and implementation of a spy robot for industrial inspection" by S. K. Prasad, et al. This paper presents the design and implementation of a robot that can be used for industrial inspections in hazardous environments.

IV. DESIGNOF SPY ROBOT

In spy robot made up of six basic constituent elements, they are dynamic system, the end-of-arm tool, the computerized digital controller, the actuators, the feedback devices and the sensor.



Basic elements of robot

The software is an essential part of the robot's operation. You will need to choose a programming language and a framework to develop the robot's software. You may also need to use machine learning algorithms to help the robot make decisions.Build the robot: Once you have chosen the hardware and software, you can start building the robot. This involves assembling the hardware, wiring the components, and programming the software. You may need to use a 3D printer or other tools to create custom parts for the robot.Test and refine: Once the robot is built, you will need to test it to ensure that it meets the requirements. You may need to make adjustments to the hardware or software to improve the robot's performance.Deploy and operate: Once the robot is tested and refined, you can deploy it for its intended purpose. You will need to operate the robot and monitor its performance to ensure that it is functioning properly.

V.PROPOSED WORK

The proposed workperformed with help of a spy robot used to monitor and keep watch of areas not easily accessible by humans. Surveillance is the process of monitoring a situation, an area or a person. It is generally practiced in a military scenario where surveillance of borderlines and enemy territory is essential to for the country's safety.Human surveillance is achieved by deploying personnel near sensitive areas in order to constantly monitor changes.

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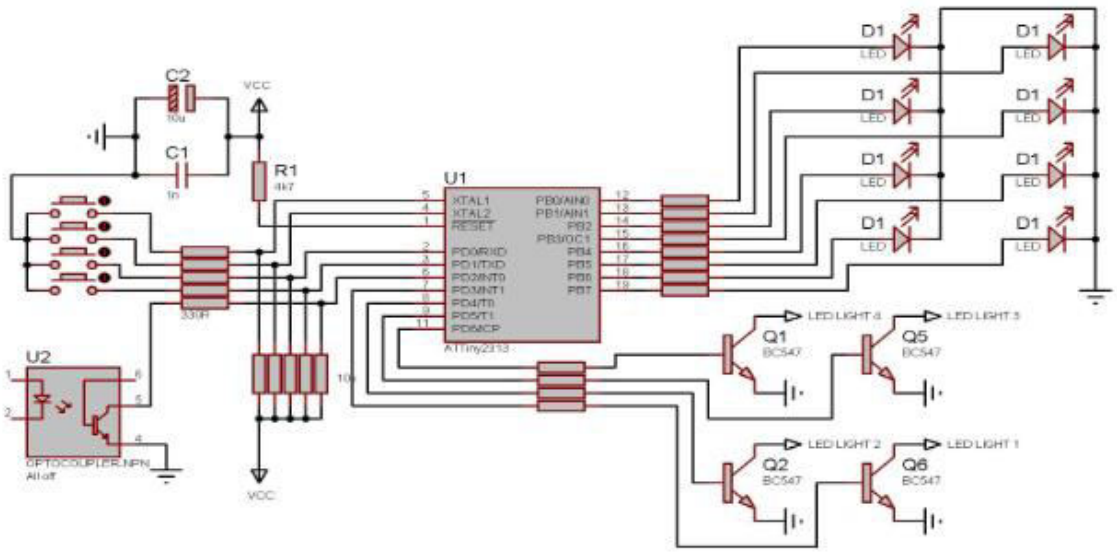
CIRCUIT DIAGRAM

The electronic circuit controlling the robot is built around AVR Pro Mini. The L293D motor driver IC and HC-05 Bluetooth module are interfaced to the controller board. A pair of geared DC motors are attached at the rear wheels which are interfaced with the motor driver IC. A mobile phone whose camera is used as IP web camera is mounted on the robot body.This basic circuit has 7 inputs and 8 outputs and uses an ATtiny2313 with internal oscillator. That is the maximum capacity for this device if you don't count PA.0, PA.1, and PA.2, which is typically used for a crystal oscillator and a reset switch.



VI.WORKING

Power Supply - In the circuit, AVR Pro Mini and the Bluetooth module need a 5V regulated DC for their operation while the motor driver IC needs 12V DC. A 12V NIMH battery is used as the primary source of power. The respective voltage outputs are drawn from pin 3 of the respective voltage regulator ICs. An LED along with at 10K Ω pull-up resistor is also connected between common ground and output pin to get a visual hint of supply continuity. Among the first of the AVR line was the AT90S8515, which in a 40-pin DIP package has the same pinout as an microcontroller, including the external multiplexed address and data bus. The polarity of the RESET line was opposite (8051's having an active-high RESET, while the AVR has an active-low RESET), but other than that the pinout was identical,The AVR 8-bit microcontroller architecture was introduced in 1997. By 2003, Atmel had shipped 500 million AVR flash microcontrollers.The platform, developed for simple electronics projects, was released in 2005 and featured ATmega8 AVR microcontrollers.

We can understand microcontroller by comparing it with Personal Computer (PC), which has a motherboard inside it. In that motherboard a microprocessor (AMD, Intel chips) is used that provides the intelligence, EEPROM and RAM memories for interfacing to the system like serial ports, display interfaces and disk drivers. A microcontroller has all or most of these features built into a single chip, therefore it does not require a motherboard and any other components.
The app automatically uses the mobile camera as IP camera. Another mobile phone will be used to control the robot over Bluetooth. It has a custom app installed on it which can move the robot in forward, backward, left or right direction. The development of the custom app using "Rame App" is discussed in the programming guide section. In control circuitry of the robot is powered on, it initializes the controller and starts reading data from the Bluetooth module. The control commands can be passed to the robot using a custom app running on an android phone. The app has a user interface which allows moving the robot forward, backward, turn left, turn right and stop .There are many IP webcam applications are available in the Google play store, but two applications are quite good - one is Alfred and second is IP webcam. An internet protocol (IP) camera is a type of digital video camera, generally employed for surveillance which can send and receive data via a computer.

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VII.CONCLUSIONS

We have successfully implemented the working of the wireless video surveillance robot con- trolled using android mobile device. The robot is successfully controlled using the android application through the wireless Bluetooth technology. Even the real time video feel is success- fully achieved using the Wi-Fi technology on our designed android application. Surveillance is needed in almost every field. It could be a great solution to various problems or situation where wireless Surveillance is needed our project has tremendous scope as it uses the latest technology in the market.Our application uses the android OS which is currently the most used OS and also has a great future scope. The Surveillance robot can be controlled remotely using the android application; this gives it a huge scope for future application.

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