Videography Robotic Arm

Ajay J Thumbe[1], Arpita RameshK[2], Chinnakotla Hemalatha[3], Gaurav GS[4], Prof.Triveni[5]

[1,2,3,4,5]*Department of Electronics and Communication Engineering, Dr. Ambedkar Institute of Technology, Mallathally, Bangalore*
Corresponding Author: Ajay J Thumb

ABSTRACT--In this digital age, photography has a huge demand. In this project, you will build a robotic arm that can become your photographer. It can take snapshots and videos from a variety of angles. It will be one of the best devices for branding. You will use Raspberry Pi as the brain of the system. Dc motors drives the mechanics to a robot by applying certain degree (180). Attach a high-speed camera atthefunctionalend ofthearm.Youwillcontrolitsmotionusingyourmobilephone. It will be done using a Bluetooth module and IR sensors detects themotion. An environmental monitoring system involves the collection of one or more measurementsthatareusedtoassessthestatusofanenvironmentandalso,torecord the data. There is a need to monitor temperature or gases as they can be costly and deadly. The robotic system has designed for cost effective remote monitoring environmental parameters without any human intervention to avoid health risk efficiently.

Keywords—Raspberry pi, Web Camera, Bluetooth Module, IR Sensors, DC Motors.

I. INTRODUCTION

A robot is an electromechanical machine that is controlled by computer program to perform various operations. Robot is a reprogrammable, multifunctional device which is primarily designed to do work like human such as pick and place, loading and unloading, surveillance, health care, industrial, aerospace application. Robots can perform dangerous and accurate work to increase the productivity as they can work 24 hours without rest.

Now a days Robotics plays a major role in lot of Automation Fields. Robotic Actions become more efficient in upcoming years. Starting from gesture, line follower and Path follower several Path estimation algorithms are developed for robotic movement.

Wildlife photography is a genre of photography concerned with documenting various forms of wildlife in their natural habitat. As well as requiring photography skills, wildlife photographers may need field craft skills. For example, some animals are difficult to approach and thus a knowledge of the animal's behavior is needed in order to be able to predict its actions. Photographing some species may require stalking skills or the use of a hide/blind for concealment.

While wildlife photographs can be taken using basic equipment, successful photography of some types of wildlife requires special equipment, such as macro lenses for insects, long focal length lenses for birds and underwater cameras for marine life. However, a great wildlife photograph can also be the result of being in the right place at the right time and often involves a good understanding of animal behaviour in order to anticipate interesting situations to capture in photography.

A. MOTIVATION

Many wildlife photographers have lost their life due to the attack of wild animals. Although experienced, sometimes, a slightest mistake can claim the life of a person. Also, many of the photographers have died whilst capturing an image at dangerous locations on earth. This project aims to ease the burden on the photographers.

B. AIM OF THE PROPOSED SYSTEM

With the help of Videography Robotic Arm, one can easily capture photos as well as videos of the wild animals and rare locations. The system proposes two modes of operations, both of which intends to ease the job of a photographer. Bluetooth module as well as infrared sensors are used an inputs in different modes of operation.

II. LITERATURE SURVEY

A.Web-Based Control and Monitoring of Tele presence Robot
John Paul Antony and Dr. S. Rajpandian presentsabout building a video and recording system

using raspberry pi micro computer which records the HD video by motion captured vision camera.

B. Unmanned Aerial Vehicle for Video Surveillance Using Raspberry Pi

M. Priyanka and V. Raja Ramanan develops aWiFi hotspot with Parental Controls to shield your kids from harmful content. Use your Raspberry Pi as a WiFi Hotspot to protect your kids online activities. The main objective of this paper is Real time video telemetry for controlling.

C. Intelligent Appliances

This is also be done by using the dedicated Android application. The conventional switch boards will be added with a touch screen. It was introduced by Abudoulikem

III. METHODOLOGY

The figure represents the block diagram of a Videography Robotic Arm. Here all the external devices are connected to the controller i.e., Raspberry pi 3. The power supply to the raspberry pi is given through the battery. With the help of the sensors, the arm of the robot rotates according to the input and captures the photo as well as video.
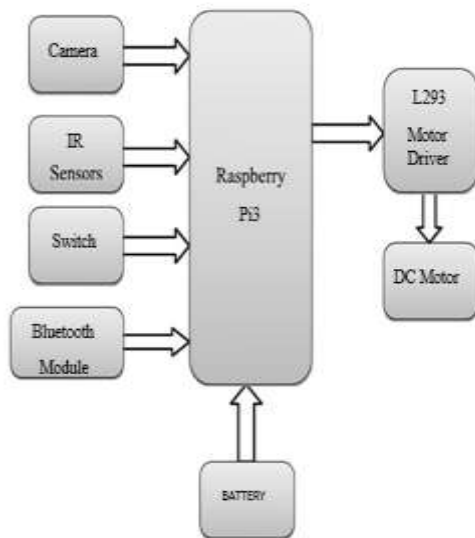

Fig 1: Block Diagram of Proposed Model

- The working of the project can mainly be divided into 2 modes namely, the automatic mode and the manual mode.
- The manual mode of operation includes the controlling of the robot manually with the help of a Bluetooth module.
- This mainly includes controlling the movement of the robot as well as manually capturing the images as well as the videos by the robot.

- The automatic mode of operation takes the input from the sensors.
- Two IR sensors are place at different locations.
- When either of the sensors are activated, the arm of the robot, rotates in such a way that the camera faces the IR sensor that is activated.
- Next, it captures the image as well as the video for a certain duration of time.
- The image captured is sent to the predefined email and the video recorded is stored within the memory and can be viewed later on.

IV.   ADVANTAGES & DISADVANTAGES

A. ADVANTAGES

1. Robots can capture videos at dangerous locations, where humans cannot reach.
2. It can replace conventional photographer at functions.
3. In wildlife photography, it possesses major advantage for photographers.
4. One of the important advantages of Videography Robotic Arm is that it can be implemented for surveillance purposes.
5. It is also helpful for solo travellers to take pictures from various angles.

B. DISADVANTAGES

1. In manual mode of operation, the robot needs to be monitored continuously.
2. Clarity of the image may be compromised.
3. Since the camera is wired, it can rotate only upto an angle of 180^0.

V. APPLICATIONS

1. Videography Robotic Arm has a major application in military base for front line defense.
2. The proposed system can outrun the conventional CCTV cameras and also replace them, since this system does not have any blind spot.
3. These robots find their applications in industries to examine various machines.
4. These robots can also be used in search and rescue operations in case of natural calamities.
5. It also holds applications in wildlife and environment monitoring.

VI. FUTURE SCOPE

1. Robotic Arms have a wide scope of development.
2. In this present world there is plethora of technological improvement and relaying on human activity is completely scaled down.
3. The accuracy of capturing the perfect snapshots at different desired angles is high.

4. Adding various sensors to the robot can increase it's applications in various fields.

VII.   CONCLUSION

Now a days Robotics plays a major role in lot of Automation Fields. Robotic Actions become more efficient in upcoming years. Starting from gesture, line follower and Path follower several Path estimation algorithms are developed for robotic movement.

Wildlife photography is a genre of photography concerned with documenting various forms of wildlife in their natural habitat. As well as requiring photography skills, wildlife photographers may need field craft skills. For example, some animals are difficult to approach and thus a knowledge of the animal's behavior is needed in order to be able to predict its actions. Photographing some species may require stalking skills or the use of a hide/blind for concealment

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