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RC SURVEILLANCE CAR USING ESP32 CAM ALONG WITH SMARTPHONE CONTROLLER BY WI-FI AND BLUETOOTH TECHNOLOGIES

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ABSTRACT

The Technology behind this paper is to develop a Robot to perform the act of surveillance in domestic areas. Nowadays robots play a significant role in our day today life thus reducing human labor and human error. Robots are going to be manuallycontrolled. In this project, one can manage the Robot with the help of mobile through Internet and might conjointly get the live streaming of video each in daytime furthermore as at night time with the help of wireless camera in the robot. Themechanism are going to be controlled manually with ESP32 CAM with TTL. This robot uses motor driver to the controller that controls the mechanism.

Keywords: Blutooth, WI-FI, Smart Phone, RC Surveilence.

1. INTRODUCTION

Technology has brought a dynamic and tremendous modification in AI and automation field that ranges in all kinds of areas. Surveillance is the process of systematic observation or direction maintained over an individual, group, etc. particularly one in custody or beneath suspicion. Therefore surveillance is needed within the areas like border areas, public places, offices and in Industries. It is mainly used for observation activities. The act of Surveillance can be performed each indoor also as in outside areas byhumans or with the help of embedded systems like robots and alternative automation devices. A robot is nothing however an automatic electronic machine that's capable of playing programmed activities therefore replacing human work, providing extremely correct results and simply overcoming the constraints of citizenry. Therefore replacementof humans within the surveillance fields is one of the greatest advancement in AI.

The mechanism consists of ESP32 controller that acts as the heart piece of the robot. Thismechanism additionally consists of DC motors, wheel chassis, battery, Wi-Fi Module andmotor driver. The mechanism will be operated manually. User end communicates with the mechanism by implementing the Internet of Things. This may be achieved through code, that is employed for IOT developing comes. The command area unit sent to the mechanism by means of code received by ESP32 controller via Wi- Fi module since each area unit is interfaced with one another. Therefore the mechanism will be controlled in a wireless manner. During this project, we tend to use wireless transmission camera that gives video information which will be received at the user end.

2. LITERATURE REVIEW

Many definitions of the Internet of Things exist, however at the foremost fundamental level it will be delineated as a network of devices interacting with each other via machine to machine (M2M) communications, facultative assortment and exchange of information, [4]. This technology permits automation inside an oversized range of industries, in addition as permitting the gathering of massive knowledge. Hailed because the driver of the Fourth technological revolution [5], Internet of Things

technology has already found business use in areas like sensible parking [6], preciseness agriculture [7], and water usage management [8]. Extensive research has additionally been conducted into the utilizationof IOT for developing intelligent systems in areas together with tie up step-down [9], structural health monitoring [10], crash-avoiding cars [11], and sensible grids [12].

While the same fields seem immensely completely different to tending, the research conducted inside them verifies the credibility ofAssociate in Nursing IOT-based healthcare system. Existing systems in alternative fields have established that remote monitoring of objects, with knowledge assortment and news square measure possible. The robot is controlled by smart phone and hardware. This kind of robot is helpful in any spyingreason field like military and police further it can be used for security of assists [13]. This can thus be expanded and tailored for watching the health of individuals and reporting it to relevant parties like caretakers, doctors, emergency services, and tending centers. We've got applied IOT in AI. That mechanism is also applied in healthcare too in addition as remote sensing.

3. EXISTING SYSTEM

Arduino Uno is a popular microcontroller development board based on 8-bit ATmega328P microcontroller. Along with ATmega328P MCU IC, it consists other components such as crystal oscillator, serial communication, voltage regulator, etc. to support the microcontroller.

Arduino Uno is a microcontroller board based on 8-bit ATmega328P microcontroller. Along with ATmega328P, it consistsother components such as crystal oscillator, serial communication, voltage regulator, etc. to support the microcontroller. Arduino Uno has 14 digital input/output pins (out of which 6 can be used as PWM outputs), 6 analog input pins, a USB connection, A Power barrel jack, an ICSP header and a reset button.

How to use Arduino Board

The 14 digital input/output pins can be used as input or output pins by using pin Mode(), digital Read() and digital Write()functions in arduino programming. Each pin operate at 5V and can provide or receive a maximum of 40mA current, and has an internal pull-up resistor of 20-50 KOhms which are disconnected by default. Out of these 14 pins, some pins have specific functions as listed below:

Serial Pins 0 (Rx) and 1 (Tx): Rx and Tx pins are used to receive and transmit TTL serial data. They are connected withthe corresponding ATmega328P USB to TTL serial chip.

External Interrupt Pins 2 and 3: These pins can be configured to trigger an interrupt on a low value, a rising or fallingedge, or a change in value.

- PWM Pins 3, 5, 6, 9 and 11: These pins provide an 8-bit PWM output by using analogWrite() function.
- SPI Pins 10 (SS), 11 (MOSI), 12 (MISO) and 13 (SCK): These pins are used for SPI communication.
- In-built LED Pin 13: This pin is connected with an built-in LED, when pin 13 is HIGH – LED is on and when pin 13 isLOW, its off.
- Along with 14 Digital pins, there are 6 analog input pins, each of which provide 10 bits of resolution,
- i.e. 1024 different values. They measure from 0 to 5 volts but this limit can be increased by using AREF pin with analog Reference() function.

- Analog pin 4 (SDA) and pin 5 (SCA) also used for TWI communication using Wire library.
- Arduino Uno has a couple of other pins as explained below:
- AREF: Used to provide reference voltage for analog inputs with analog Reference () function.
- Reset Pin: Making this pin LOW, resets the microcontroller.

Once arduino IDE is installed on the computer, connect the board with computer using USB cable. Now open the arduino IDE and choose the correct board by selecting Tools>Boards>Arduino/Genuine Uno, and choose the correct Port by selecting Tools>Port. Arduino Uno is programmed using Arduino programming language based on Wiring. To get it

Applications

- Prototyping of Electronics Products and Systems
- Multiple DIY Projects.
- Easy to use for beginner level DIYers and makers.

4. PROPOSED METHDOLOGY

facial recognition

Upload Code to ESP32-CAM AI-Thinker using ESP32-CAM-MB USB Programmer (easiest way)

Learn how to upload code to the ESP32-CAM AI-Thinker board using the ESP32-CAM-MB micro USB programmer. This is the easiest way to program your ESP32-CAM board. This micro USB programmer works like a shield that you attach to the ESP32-CAM board. The programme comeswith a USB socket that you connect directly to your computer.

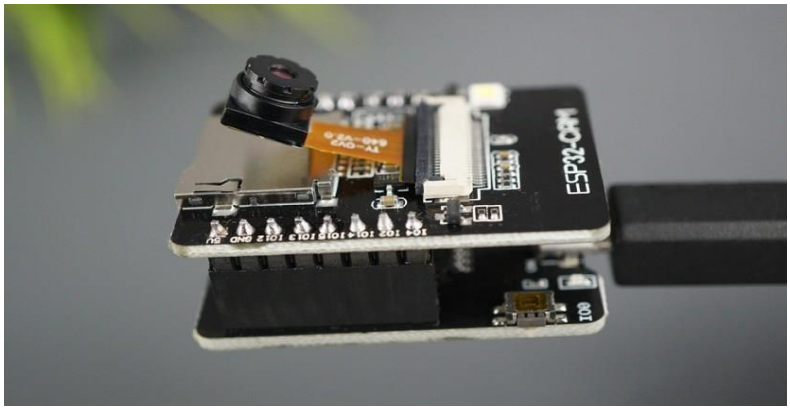

Fig. 1: ESP32-CAM AI-Thinker using ESP32-CAM-MB USB

Programmer

The ESP32-CAM AI-Thinker module is an ESP32 development board with an OV2640 camera, microSD card support, on-board flash lamp and several GPIOs to connect peripherals. And it costs just a few bucks.

However, one of the biggest hassles when working with the ESP32-CAM Ai-Thinker module is uploading code to the board. The AI-Thinker board doesn't have a built-in USB programmer. In[1] previous tutorials we recommended using an FTDI programmer to connect to the board through the

serial pins.tionally, you also needed to follow another two or three steps until successfully uploading the code. But now you can simply use the ESP32-CAM-MB USB programmer and click the Upload button to successfully program your board. It's that simple.

4. CONCLUSION

In this work, the framework for creating an automaton for police work purpose is proposed.It overcomes the matter of restricted vary police work by mistreatment the concept of IOT. The automaton will be controlled with the assistance of mobile manually. Our projected automaton is tiny in size so maneuvering into space wherever human access is not possible. Wireless technology is one in every of the foremost integral technologies within the natural philosophy field. This technology is employed is a supreme a part of police work act. This provides extremely economical and a price effective automaton that replaces human work and reduces human labor and performing observance works during a well effective manner.

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