

***Arduino Controlled Bank and ATM Spy Robot using Night Vision
Wireless Camera and Android Application***

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Abstract— Nowadays theft has become a big threat to bank and ATM. "Securing and observing have turned into the principle objective for controlling burglary. A few advances have been produced to control burglary. Several technologies have been developed to control theft. The existing technologies can control only theft but not the culprits who steal the bank. The proposed system is used to provide security to control theft and giving alert to the head officer when there is a break-in, using wireless live video. The advanced locking system technology is implemented along with the traditional locking system. There are three techniques to prevent theft. First, IR sensor which is placed in front and rear side of the ATM. This IR sensor activated during the illegal activities occurs and alert the officer. Then the passcode lock system is used to detect the passcode is correct or not. If the entered passcode is incorrect the Arduino processor controller will be activated. The third is using buzzer incase robbery happens then video signaling device activates automatically and control the energy level through the sprayer.

Keywords — Robot, Night Vision, Sprayer, Buzzer, Android.

I. INTRODUCTION

A robot is an electromechanical machine that is controlled by PC program to perform different tasks. Modern robots have intended to diminish human exertion and time to enhance efficiency and to lessen producing cost. Today human-machine collaboration is moving far from mouse and pen and ending up substantially more unavoidable and significantly more good with the physical world. Android application can control the robot movement from a long separation utilizing Bluetooth correspondence to interface controller and android. Microcontroller ATMEGA328P-PU can be interfaced to the Bluetooth module however UART convention and code is composed in implanted C dialect. According to the orders got from android application the robot movement can be controlled. The yield movement of a mechanical vehicle is exact and repeatable. Pick and Place robots can be reprogrammable and device can be traded to accommodate numerous applications.

In the greater part of the remote frameworks an originator has two abrogating it must work over a specific separation (range) and exchange a specific measure of data inside a time allotment (information rate) L293D is the most ordinarily utilized driver for bidirectional engine driving applications. L293D is a 16 stick engine driver IC which is utilized to drive the engines. L293D is a double H-connect engine driver. It can be utilized to drive coordinate current on either heading. L293D can control two DC engines all the while in either course. It is utilized as a present intensifier since it takes low current control motion as the information and gives high current flag as yield. L293D can be utilized to drive little and huge engines as well. L293D engine driver is accessible for giving client simplicity and easy to use interfacing for installed applications. It is effectively good with any of the frameworks. It bolsters outside power supply pins for engines. The plan of our task supports building up a mechanical vehicle in view of RF innovation for the remote activity associated with the remote camera mounted on the robot for observing reason. The robot is installed with 8051 arrangement microcontroller for wanted activity and is by and large utilized for spying purposes.

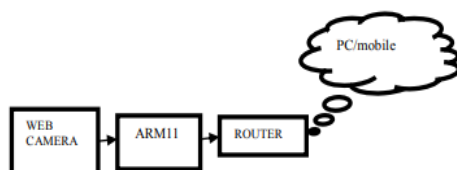


Fig:1 Transmitting Module.

The transmitting module comprise of the push catches that send the orders to the getting module for controlling the development of robot either to right, left, forward, descending. In the accepting module of the robot two engines are interfaced with the 8051 arrangement of microcontroller to control its development by means of engine driver IC. The remote control (RF transmitter) has a scope of 200m.

II. LITERATURE SURVEY

The literature survey includes the architecture of bluetooth module HC-05 along with L293D motor driver IC.

A. Bluetooth Module HC-05

The bluetooth module HC-05 consists of six pins. The six pins are Key,5V,GND,Tx,Rx,Status. The bluetooth module has two devices i) master device ii) slave device. One device connects to the master while the other device connects to the slave. The connection between the devices takes place as follows:

- One of the pin Tx is connected to pin Rx of the arduino board while the pin Rx of bluetooth module is connected to the Tx pin of arduino. Thus, in a way cross-connection is required for the operation of bluetooth module. The GND pin is given to the GND pin of arduino and power supply pin of arduino is given to the pin of power.
- In order to have proper communication, the master device must be connected to the slave. Once the pairing is done between two devices, the device will ask to enter the password.
- The password will be either 0000 or 1234. Enter the password and both the devices will be connected to each other.

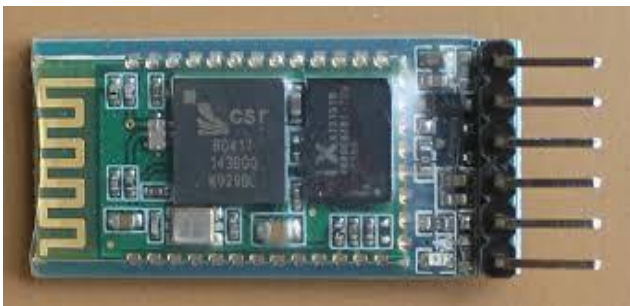


Fig.2 Bluetooth Module HC-05

B. L293D Motor Driver IC

- The L293 and L293D are quadruple high-current half-H drivers.

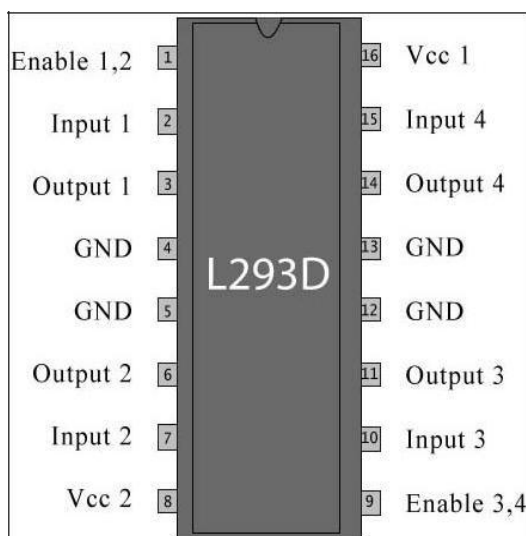


Fig.3 L293D Datasheet

C. Night Vision Wireless Camera



Fig.6 Night vision wireless camera.

Features of Wireless Camera

- Automatic Motion detection features.
- Minimum 100 meters transmission distance without block.
- Imaging Sensor 1/3 Inch-CMOS.
- CMOS Total Pixels:628*582(PAL)/510*492(NTSC).
- Minimum Illumination:1.5 lux
- View angle:62 Degree
- Camera Head weight: 15 gm.



Fig.7 Bank and ATM Robot with Wireless Night vision Camera.

IV. ANDROID APPLICATION

A large number of clients are utilizing android applications today. MIT application designer is one of the gathering which has given a huge number of makers and creators the chance to plan their own particular android application. The accompanying are the strategies and ventures to make the android application.

A. Procedure and Steps for Android Application

- Select the ai2.appinventor.mit.edu website and create an account on it.
- There are two sections i) Designer ii) Blocks.
- First step is to select the Horizontal arrangement from the Layout option.
- Select the block of List Picker and Upload Image in that from the properties Section. The List Picker will help to pick the required Bluetooth connection from the List.
- Now to design the Remote Control, Select the Button option.
- Select the Tabular Arrangement and then one by one place five buttons which will act as forward, reverse, right, left and stop buttons.
- A slider is set at the base to control the speed of the robot. Select Bluetooth Client from the square Connectivity.
- Select the Clock option also.
- Create two more buttons for rotating the camera left or right
- Next step is the blocks designing.
- Block designing consists of connecting programmed blocks with each other. Some figures below will describe the block programming.
- Select the block of listpicker before picking and adjust the block of bluetooth client. Next select the listpicker after picking option.
- Select the block of clock and adjust the bluetooth client block with it. Select the connected option from the different options given like control, Math etc.

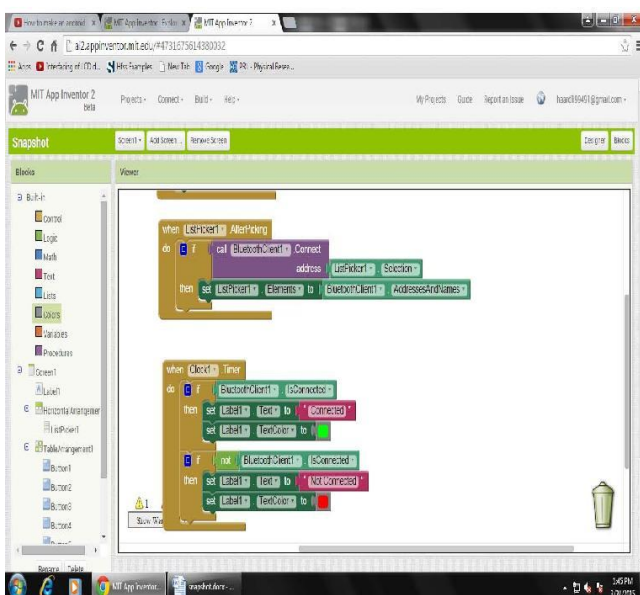


Fig.6 Block Programming [10]

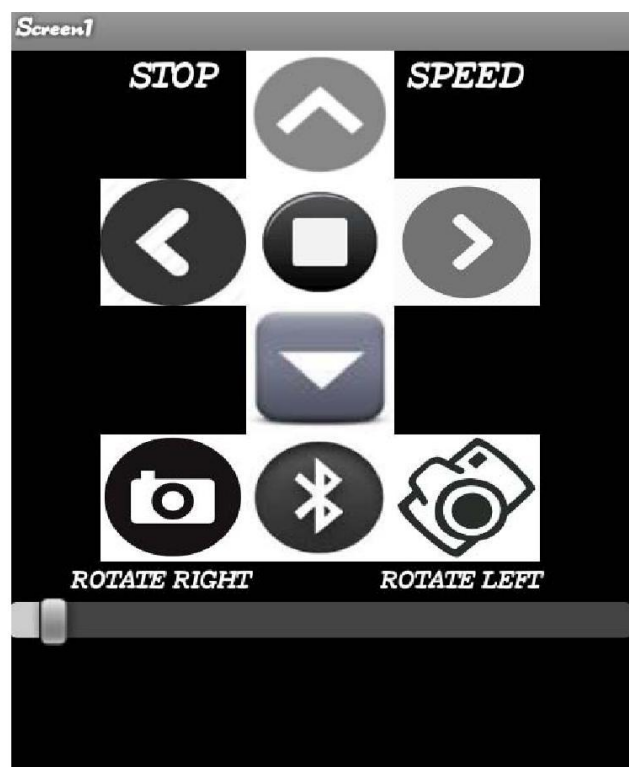


Fig.8 Android Application in Smartphone

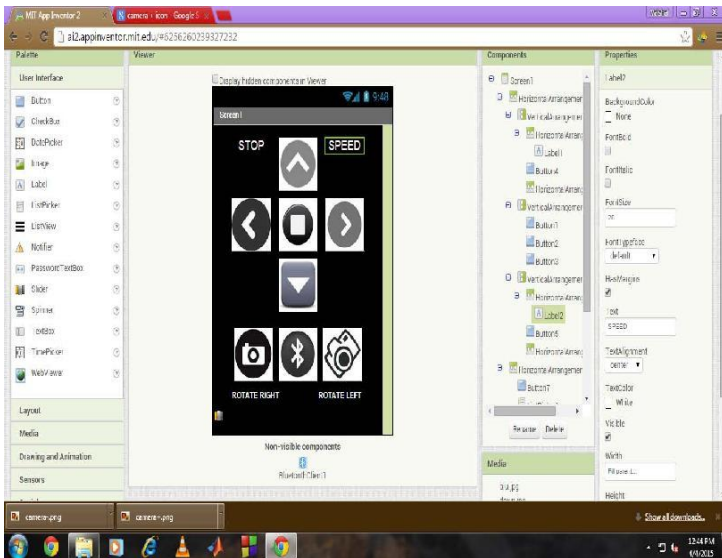


Fig. 8 Android Application Design

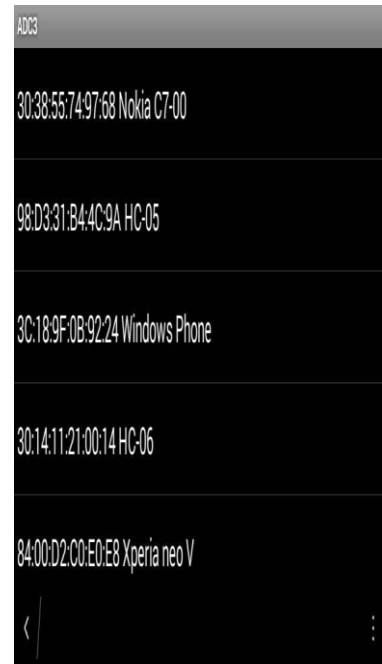


Fig.9 Bluetooth List Selection

V. APPLICATIONS

- Banking area for burglary of cash location
- ATM cash robbery
- Search and Rescue Operation.
- Maneuvering in unsafe condition.

VI. FUTURE ENHANCEMENT

The robot can be made more miniature in size. One of the limitations of this robot is the range of the robot. The bluetooth module used here has a limited range and thus this robot cannot be operated over far distances. To increase the range many other modules such as Wi-Fi and Zigbee can be used.

VII. CONCLUSION

The model of robot can be portrayed to assemble a robot utilizing night vision remote camera keep running by android application and the general population can find out about creating android application with a specific end goal to control the robot through remote application utilizing the stage of MIT application creator.

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