

# Android Based Vehicle Lifting System Using Wi-Fi

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## Abstract:

In today’s Fast & Rapid growing world technologies has been upgraded but still Roadside Vehicle lifting system has been not developed yet very well. Still time wasted in lifting up Vehicles for replacing of Punctured (Flat) Tyres is not reduced. In other countries solution over this problem has been found out.

A car jack works on the 12V power supply which is obtained from the car battery itself. Operator only needs to press a button from the app without working in a bent or squatting position for a long period of time to change a tire. In order to fulfill the present car jack problem, some improvement in the present technology has to be made.

Changing flat tire is not a very pleasant experience. Operating the manual car jack is quite difficult job. This purpose is to mainly encounter this problem. This paper presents the development of the car jack which is controlled by android app.

*Keywords* – Android app, Automatic Car Jack, Arduinio Uno Board.

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## I. INTRODUCTION-

This paper consist of Android Based Vehicle Lifting System Using Wi-fi. Main motive of designing this project is to reduced time consume by People to reduce punctured(Flat) tyres.The human effort, Time consumed as well as Energy wasted in this work can be reduced without much more cost.

This type of technology has already been introduced in countries like Japan, China, etc. People in India could not afford it because of its cost and operation.

The purpose of this work is to modify the design of the existing car jack in terms of its functionality. In this “Android-based advanced car lifting system using Bluetooth”, the scopes of research were on developing an integrated system to the car that can be used through wireless remote control.

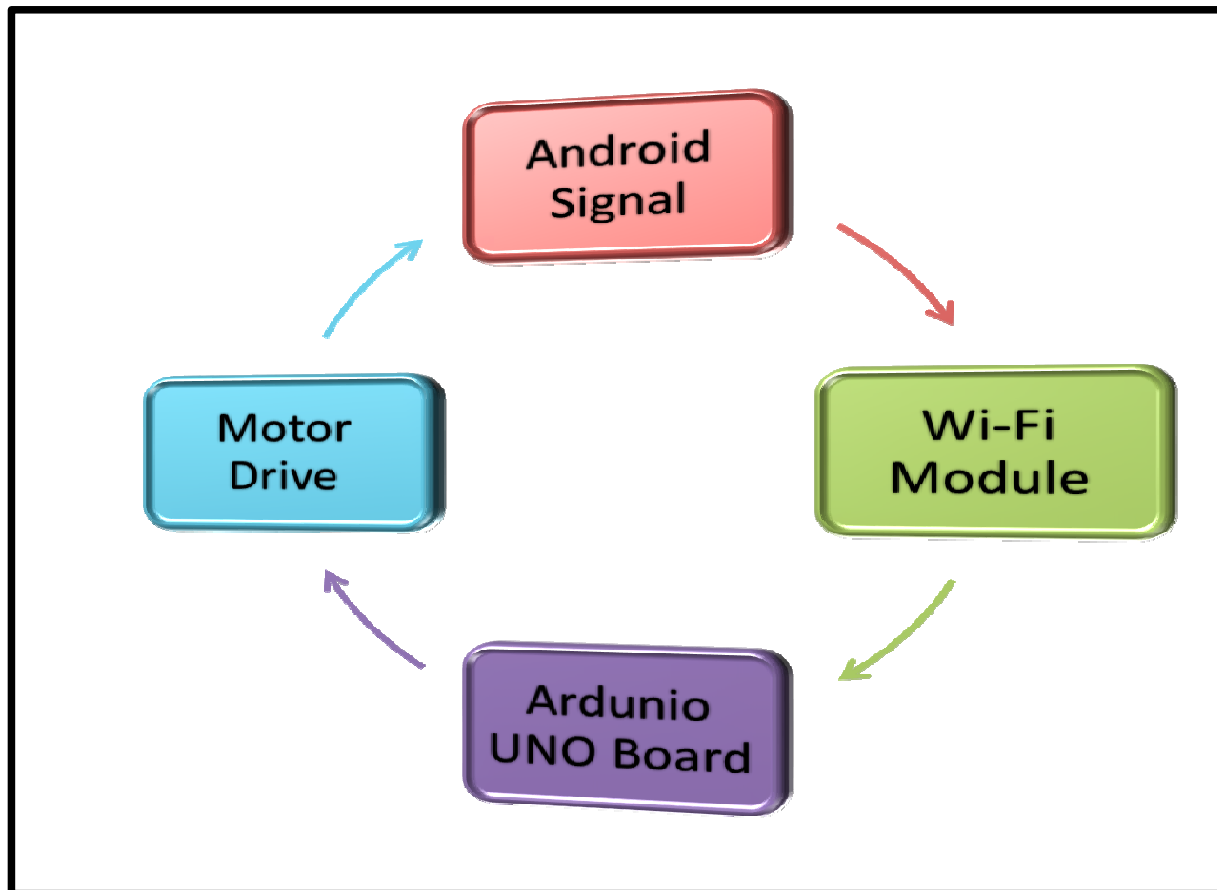


Fig.1.1 Flow Diagram for working cycle of Android Based Vehicle System.

## II. PROPOSED METHODOLOGY-

Manual jack is converted to automatic one by establishing an interface between the app, electronic circuit, and DC motor and the gearbox. When the Arduino receives signals, the relay passes the 12V DC to the motor which drives the gear train which in turn rotates the lead screw of the jack.

Table:I

Components & Specifications

Sr.No.	Components Used	Specifications
01	Vehicle Lifting Jack	Screw Type, 1- Ton Lifting Capacity
02	Arduinio Uno Board	ATMEGA-328
03	Motor	12V DC
04	Wi-Fi Module	ESP8266

1. Jack- Mechanical device/tool used for lifting up&down Vehicle is known as Jack. There are various types of Jack like-

1. Screw type Jack
2. Hydraulic Jack
3. Oil Pressure Jack
4. Strand Type Jack
5. Pneumatic Jack

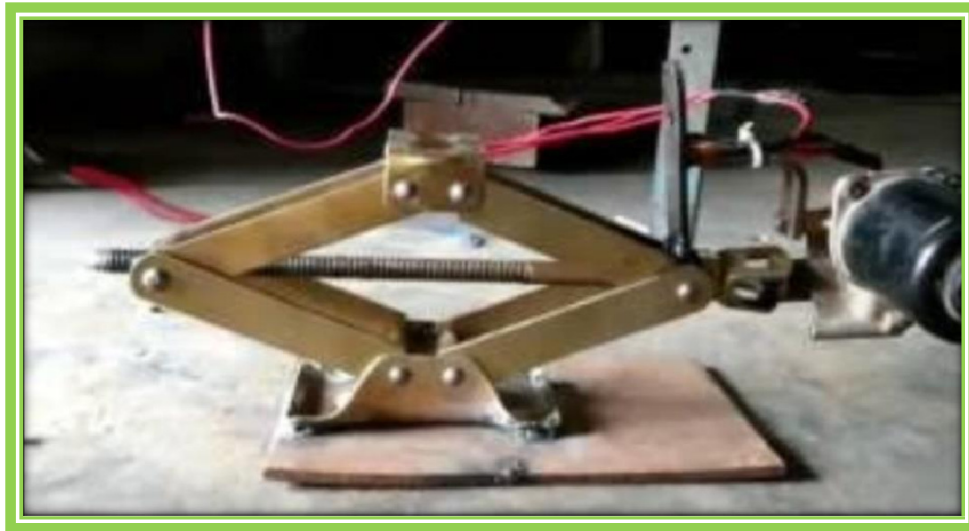


Fig.1.1 Practical Image of Screw Jack

2.Arduino Uno Board- Electronic component which can be easily programmed using Java, C++, Assembly language to control a devices is known as Arduino Uno Board. There are various types of Arduino Board like-

1. Arduino Uno
2. Arduino IDE
- 3.Arduino Mini
- 4.Arduino Pro
- 5.Arduino Lio

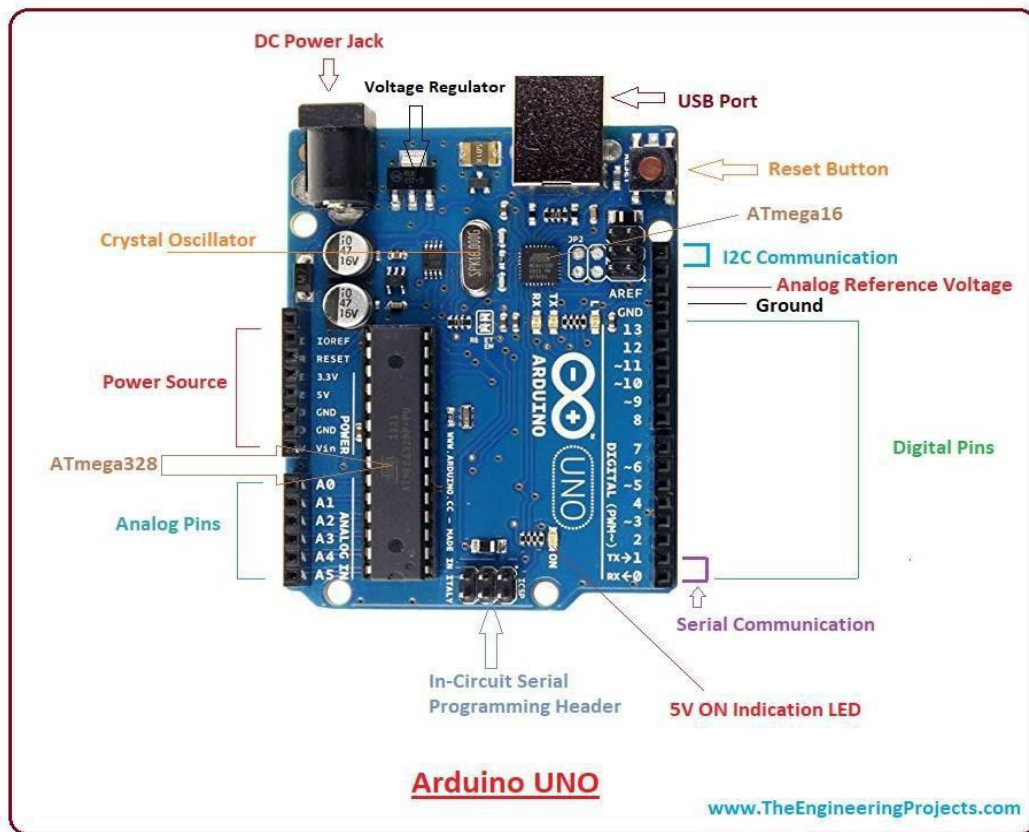


Fig.2.1 Practical Image of Arduino UNO board.

3.Motor- Device/Machine which converts Electrical Input energy into Mechanical output energy is known as Motor. There are various type of DC motor like-

1. BLDC
2. Compound Shunt Motor
3. Compound Series Motor



Fig.3.1 Practical Image of DC Motor.

4. Wi-Fi Module- ESP8266 has 8 pins, 4 in the row of 2. The rst(reset) pin on the top left is GND. The two pins right from the GND are GPIO 2 and 0. The pin on the top right side is the RX pin and the pin on the lower left is TX. These are the pins for communication. The middle pins on the bottom are CH-PD (chip power-down) and RST (reset). The main thing to remember is this device works with 3.3V, even the RX and TX pins. Arduino or many USB to serial converters work with 5V. The solution for this project is in the next step.

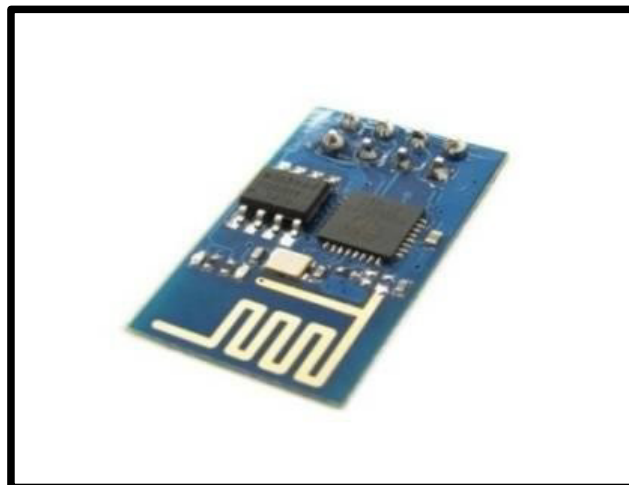


Fig.4.1 Wi-Fi Module

### III. Working-

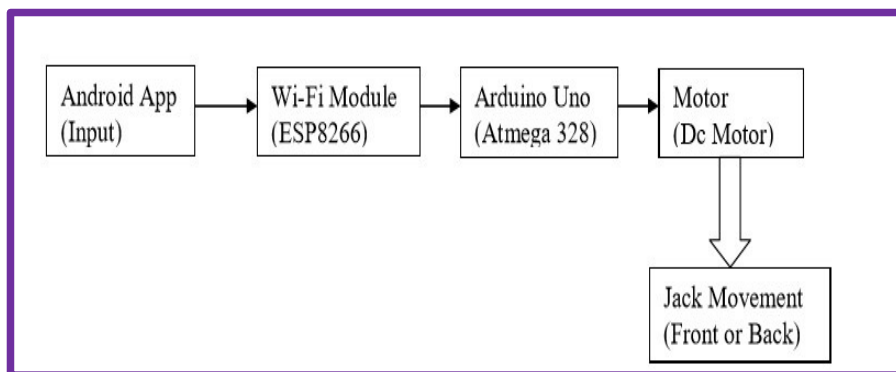


Fig.4.6 Block Diagram of Working Process.

AS per above mention block diagram Input through Android app is given to the WI-FI module or Bluetooth Module which is used as a optional connectivity .Then Further through this +signal is feed to Arduinio UNO board which command the rotation direction of motor & thus movement of jack i.e UP or Down takes place.

### IV. Obervations & Readings-

Table:2

Observation & Readings

Sr.no	Load in Kg	Time Taken to Lift using Electric Jack	Time Taken to lift Manually
01.	10	5 min	10 min
02.	20	10 min	20 min
03.	30	15 min	30 min
04.	40	20 min	40 min

## **V. CONCLUSIONS-**

Thus Time taken by Electric jack as compared to Manually lifted jack is all most the half time taken as well energy is also saved.

## **ACKNOWLEDGMENT-**

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