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# A Review on Android Based Advanced Vehicle Lifting System using Bluetooth

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**ABSTRACT:** In today’s fast & rapid growth Automobiles has become a need of each and every person. Even after introduction of new range of tubeless tires a most common problem with us is punctured wheel which is to replaced is still very hard work for loaded Bigger vehicles like Containers etc. Human Efforts, energy wasted as well as time is much more . Inorder to reduce this such type of human Efforts, save time as well as Human energy .We have decided to make The “**ANDROID BASED VEHICLHLE LIFTING JACK**”. This will be done using Arduinio Uno board through which CARS or Vehichles can be easily lifted up & down easily just by connecting Bluetooth to Arduinio Uno board at Just a one Simple Click without wasting humans enery ,time ,as well Efforts too.

**KEYWORDS:** Android app, Automatic Car Jack, Bluetooth, Arduinio Uno Board.

## I. INTRODUCTION

To reduce all human efforts and make screw jack more feasible to use, idea of automated screw jack was utilised to render a much needful product for those who find changing of punctured tyre a tedious and cumbersome job. A project review paper titled “ **ANDROID BASED VEHICLHLE LIFTING JACK**”. Main motive of this project is to reduce the human efforts taken by humans during replacing punctured tyres. This project is not only usefull for Overloaded Vehicles But Also at Vehicle Servicing Station , Cars Service stations & Also at tyre Services Stations.

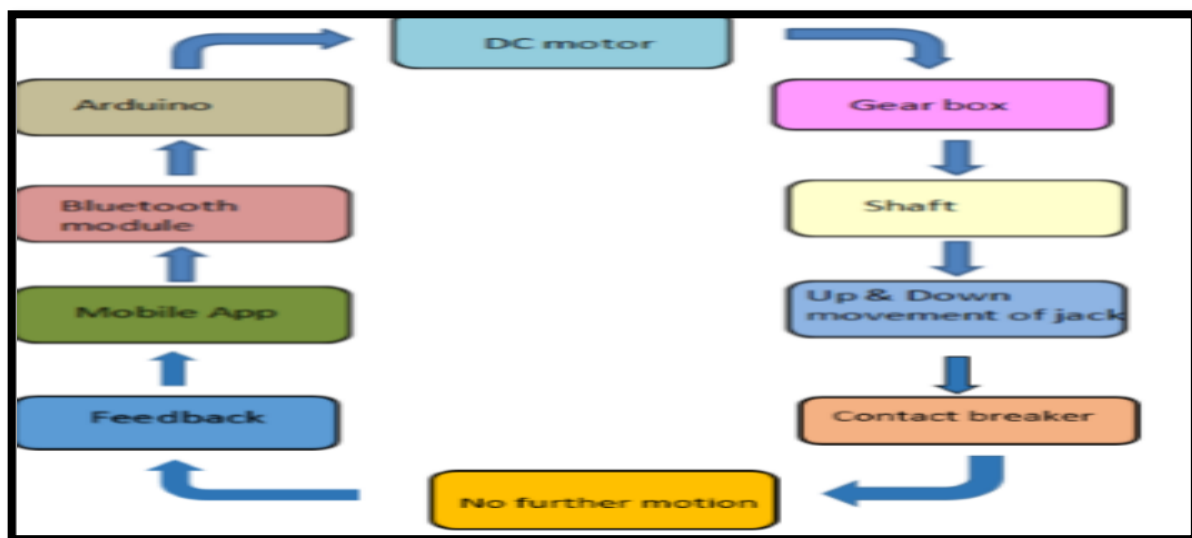


Fig.1.1 ELECTRIC JACK Flow Diagram.



## II. LITERATURE SURVEY

- 1) Authors P.S.Rana, P.H.Belge, N.A.Nagrare, C.A.Padwad, P.R.Daga, K.B.Deshbhratar explains about the integrated automated jack for 4 wheelers, i.e. by single push button provided an automobile jack can be operated. The system consists of three main parts that is hydraulic pump, driven by an electric motor, hydraulic cylinder for vehicle lift. During the breakdown condition hydraulic jacks actuate separately for either side of car. By the oil incompressible of the hydraulic jack the lifting capacity is more compared with the pneumatic system where it operates on air which is compressible. With the single acting cylinders which are controlled by the control valves and the relief valve the circuit has been done.
- 2) Authors Manoj Patil, Gaurav Udigikar, Rajesh Patil and Nilesh overcome the problem of automated car jack. In order to facilitate repairs a device used to raise all or part of vehicle into the air done by an automotive jack. In this work, electric car jack has been used by the current supply from the car battery which makes easy to operate. For the polarity of motor a switch is provided. As the required torque is applied at the screw the gear ratio provided the torque. The jack is plugged in where 12V Power supply is used to gear up.
- 3) Authors M.M.Noor, K.Kadiragama, M.M.Rarehman, M.S.M.Sani, M.R.M.Rejab gives information on development of auto car jack using internal car power. By the manual force car jack is a mechanical advantage to allow a human to lift a vehicle. The internal cigarette lighter power (12volts) in order to ensure the power is adequate, gear was used. In this paper they have used two relays where it is connected to the motor with the 12V power supply has been used for switch circuit. And implementation the prototype for the modification on the features and design, it was implemented on PERODOA Kancil, with the higher torque such as Proton Wira® and Proton Iswara® car.
- 4) Authors Mohammed Abuzaid, Mohammed Hasnain, Sahab Alam, Sohail khan, prof.surendra agarwal explains about 'Inbuilt jack in Automobile vehicles. On front and rear part of the chassis of the automobile, hydraulic jack system is attached. It can be easily attached to all kinds of automobile chassis and frames. There is a front and rear suspension hydraulic jack that is centrally mounted to front and rear suspension of automobiles between wheels respectively. It is operated by 12v dc current and works on the principle of hydraulic power. It becomes easy for the maintenance of automobiles especially heavy vehicles by implementing this system. Pascal's principle is involved in the working of the hydraulic jack system. It states that at all points in the closed container or the cylinder pressures remain same at all the points. If there are two cylinders connected small and large. Force exerted by the large cylinder is more as the area is more, provided that pressure applied remains constant. It is represented by the equation  $P=F/A$  or  $F=PA$ . Oil pressure is used by hydraulic jack to displace vehicles up and down by moving the handler. Hydraulic fluids act as a motive medium in hydraulic machinery. Hydraulic cylinders are powered by hydraulic fluids. In this system energy supplied is not absorbed by the Hydraulic fluid.
- 5) Authors madhusudhan, B.P.Mahesh, Prabhushankar, explains about the developments of the electromechanical jack for auto levelling of the vehicles. Automation plays a significant role in reducing manual involvement especially RADAR Borne vehicles plays significant role. With this methodology there are five phases which are problem definition, conceptual development, system level design, fabrication and testing as a new product development.

## III. PROPOSED SYSTEM DEVELOPEMENT

- A. Jack-A Jack is Mechanical Device/Tools used for Lifting UP & DOWN The Vehicles to Replace Puctured Tyres & also at tyre Service Stations. Type of jack used in this Project is of screw type Jack.



Fig.3.1 Actual Image of Screw type Jack



- B. Arduino Uno Board-An Arduino is a Electronic Component which can be easily used to control any Machines & Devices easily by connecting wifi module to it. Types of languages can be used for programing Arduino are Assembly , Java , C+& C++. Arduino used for Project is for controlling Rotational direction of motor & also for reversing power supply of motor. Due to this the Jack can be controlled through Android.

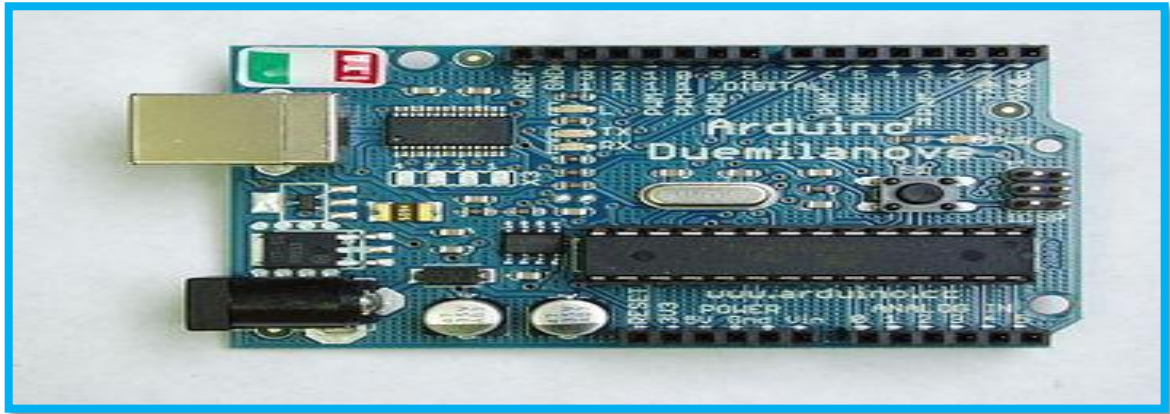


Fig.3.2 Actual Image of Arduino Uno Board.

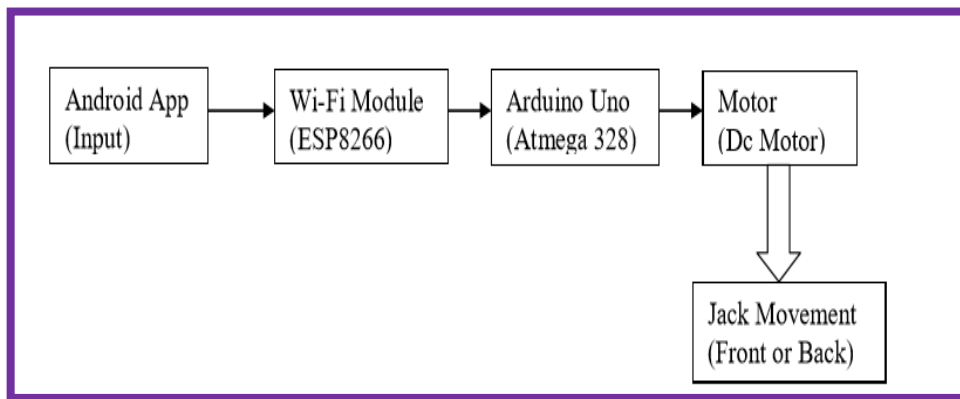


Fig.3.2.1 Block Diagram.

- C. Transformer-An Electrical component used for increasing or decreasing the Magnitude of Electrical Voltage Supply is known as Transformer. There are mainly two types of transformers which are Step Up transformer and Step Down Transformer. Type used in this project is Step Down Transformer. Transformer is used in this project for stepping down the supply from 230/12V.



Fig.3.3 Actual Image of Transformer.



D. Rectifier & Filter Unit-I. Rectifier Unit- A Component used for converting AC supply to DC supply is known as Rectifier unit. General component used for converting supply is Germanium Diode (IN4007), Silicon Controlled Rectifier (SCR).

II. Filter Unit –A components used for removing the impurities, harmonics present in the supply after rectification is known as Filter unit. Generally components used as filters are Capacitors & Inductors. Are generally connected in Parallel with that of Rectifier unit.



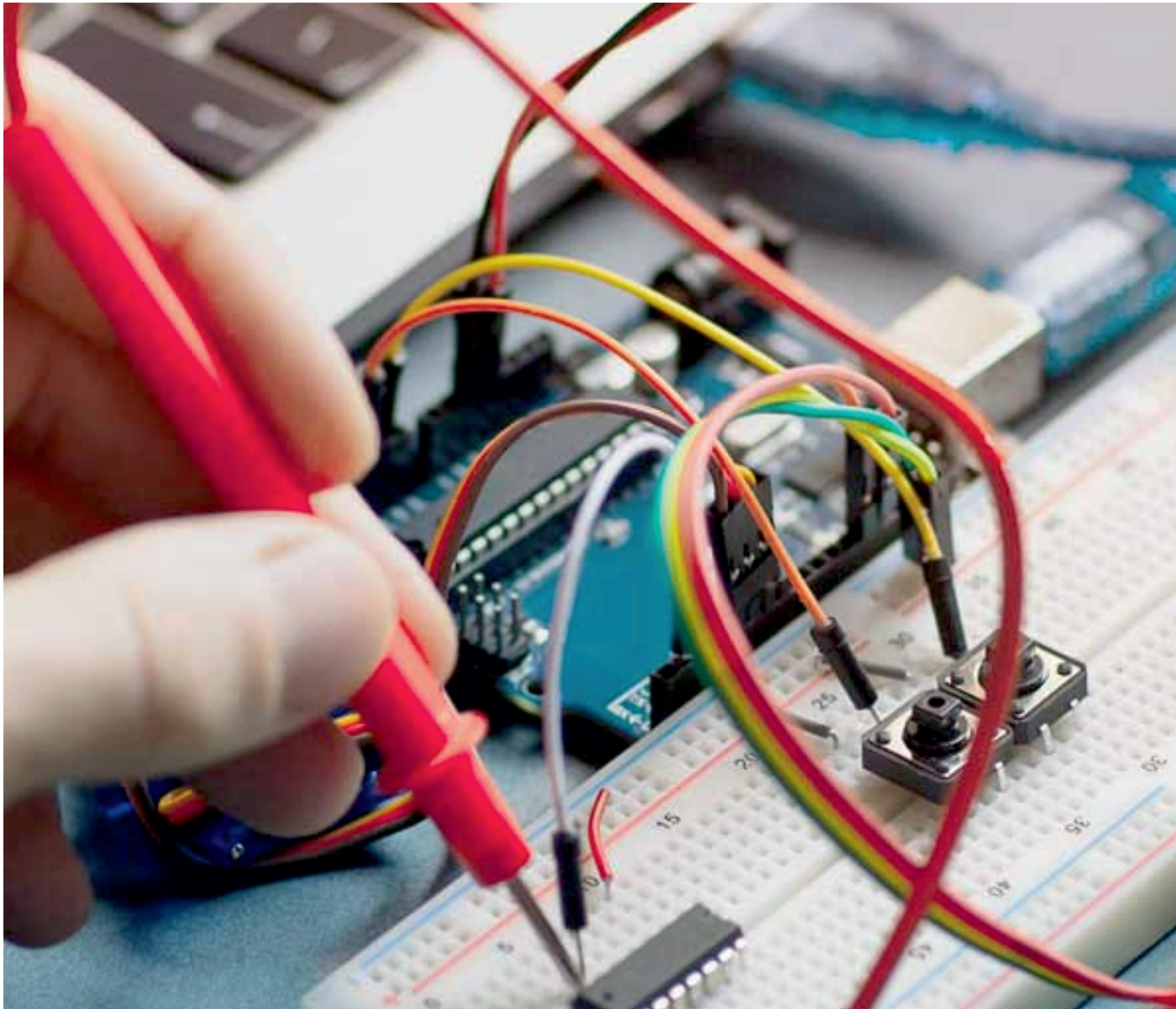
Fig.3.4 Actual Image of Bridge Rectifier.

#### IV. CONCLUSION

Main cause for designing of Android based Vehicle lifting jack based on Screw Jack is to reduced the human Efforts taken while replacing punctured tyers. This may be helpful in reducing human efforts, Energy as well as also time required by normal jack to replace punctured tyres.

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