

MINI ELECTRIC AIR PUMP WITH BATTERY LEVEL INDICATOR

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Abstract

Our project is “MINI ELECTRIC AIR PUMP WITH BATTERY LEVEL INDICATOR ” .The main aim is to find a solution for the people who loves pedaling to scenic places, cruising around town and venturing through difficult terrain on a bike and bicycle. While riding sometimes air may get reduced in tyres and blowout. In such emergency cases MINI ELECTRIC AIR PUMP WITH BATTERY LEVEL INDICATOR can help you by filling air in tyres and also for blowing air in ballons. It is rechargeable and easy to carry whenever you want and batter level is also indicated on it.

1. INTRODUCTION

Everybody loves pedaling to scenic places, cruising around town, and venturing through difficult terrain on a bike. But when your tires become punctured, lose air, and blow out, Riding on a flat tire becomes dangerous. It might look fine, but it can cause a serious accident even if you are careful. That is why bike maintenance is a must. One of the tools that you need to keep your tires in good condition and to save you from an emergency flat tire situation is an air pump. If you are looking to buy a new one, this article can help you pick the right air pump among many products in the market. But before you find the best air pump, you should learn a little more about this amazing tool. Many bike and bicycle enthusiasts and occasional

riders are already aware of the steps to inflate a bike tire. However, beginners can find this job confusing and daunting. Aside from this, many still don't know the science behind the pumping mechanism air pumps have. Here, you will learn all this interesting facts and how to pump tires. This way, you will be ready for any emergency situation that you may face unexpectedly on the road. So to reduce the accidents occurring due to sudden reduce of air in tyre or tyre puncture, we are making a device to help the riders to fill the air immediately when the air reduces in the tyre.Our device is available at low cost as compare to other devices which are currently running in the market and it is also a portable device along with a battery level indicator which we can easily carried

with us while we are travelling anywhere, because it occupies where less space.

2. RELATED WORK

A bicycle pump is a type of positive-displacement air pump specifically designed for inflating bicycle tires. It has a connection or adapter for use with one or both of the two most common types of valves used on bicycles, Schrader or Presta. A third type of valve called the Dunlop (or Woods) valve exists, but tubes with these valves can be filled using a Presta pump. The tyre inflator comes in a compact size which allows a comfortable carriage and does not take up a lot of space when you are travelling with a lot of luggage. Not only carriage, but usage is also convenient thanks to its ready compatibility with 12V power supply provided by cigarette power outlet present in most cars. Auto shut off feature ensures that the device switches off once the tyre reaches the desired pressure. This ensures that the tyre is not damaged due to extra pressure and also protects the device. A safety valve attached protects against overload. An LED added to the inflator design ensures that you can safely use it when you face a flat tyre at night.

3. IMPLEMENTATION

Now a days people are showing interest to travel long distances. But sometimes the air in the tyres will reduced or blowout suddenly, in such cases it becomes a

problem to travel and also in some situations accidents may occur. So to overcome all this problems we have designed a device which is user friendly and it can be used with a simple mechanism.

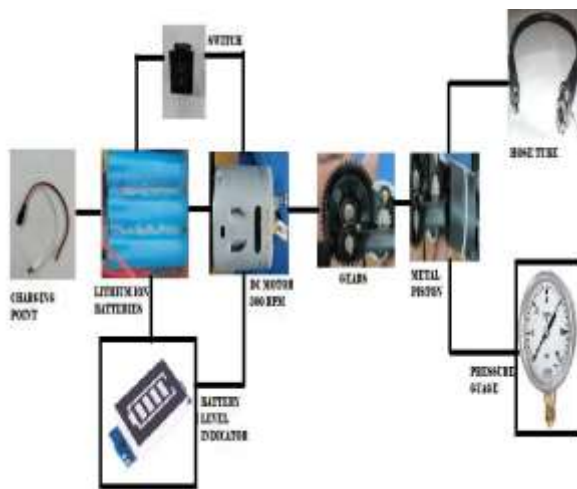
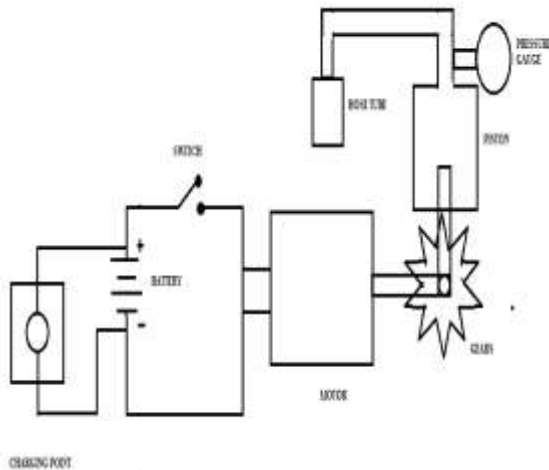
1. It should be affordable to everyone.
2. It should be portable.
3. It should be easy to carry.
4. It should work easily.

Our device is going to work on a simple mechanism. When we connect the copper terminals of the motor to lithium batteries then the electricity will induced in the motor which moves piston to and fro by using gears. When the pistons move to and fro then air will be produced which is connected to the pressure gauge and hose tube. Here hose tube is used to transfer the air into tube and pressure gauge is used to indicate pressure inside the tyre while filling the air.

In this device we are using rechargeable batteries which is connected to the charging point, when the batteries are dead we can easily recharge them and also we can easily check the battery levels with the help of battery level indicator attached to it.

We are also using switch to ON or OFF the device.

Block Diagram



4. EXPERIMENTAL RESULTS



“MINI ELECTRIC AIR PUMP WITH BATTERY LEVEL INDICATOR” is a device which is used to fill the air in tyres of Bicycles, Ballons, Footballs, and Bikes. For making this device we used Dc motor (300 rpm), Metal Piston, Gears, Lithium ion batteries, Air hose tube, Charging

point, Switch, Pressure gauge, Connecting wires, Battery level indicator .

In this device we used electricity to generate vaccum in the piston.

5. CONCLUSION

The main objective of our device is to make low cost and user friendly device “MINI ELECTRIC AIR PUMP WITH BATTERY LEVEL INDICATOR” ,Which is a portable device and can be carried easily with us while we are travelling long distances. It occupies very less space. It does not require man power to work. It is rechargeable device which is easily workable, whenever the battery is dead then we can easily replace the battery with another battery .we can identify the battery level by the indicator .so, that when the charge the batteries when the batter level is low we can easily charge the batteries by seeing at the indicator.

6. REFERENCE

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