International Journal of Research in Advance Engineering, (IJRAE)
Vol. 2, Issue 2, Apr-2016, Available at: **www.knowledgecuddle.com/index.php/IJRAE**

Emergency Mobile Charging Using Renewable Energy Resources

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Abstract: In recent days, the mobile usage is increasing rapidly. A small innovative idea of Mobile charging is this "Emergency Mobile Charger", where it avoids the usage of power bank. The main concept is to charge our Mobile phones via air. The main challenge is the charging of the device that is the "Mobile charging", where the device (mobile) needs to be regularly charged. But at the time of emergency sometime our device will fail to work due to lack of charge in it. In order to avoid it we could think about an alternate of mobile charger that could be used at the time of emergency situations, it is the way of charging the mobile via air. The main source is the air; during the time of traveling we could use this mobile charger. Since the device is handy it could be carried and used anywhere while traveling.

Keyword: *DC-Direct Current, V-Volt, mAh*-Milli-Ampere-Hours, USB-Universal Serial Bus, IC-integrated circuit

I. INTRODUCTION

The existing devices are fully equipped with many new features and applications, where these require battery charge to work. Due to longer usage the battery of the mobile will soon decrease and need to be charged frequently. It becomes too worst in case if we are in travel, where it is difficult to charge, during these situations we could use this Emergency mobile charger.

II. CONSTRUCTION

This Mobile charger equipment consists of a (12V) DC generator motor which could produce (8V – 16V - based on the speed of the vehicle) and a fan attached to it when the fan is rotated a Direct current is produced. It may then be stored in a normal 2 (1800mAh) battery and it is normally used whenever required. The storing of power is done in order to use the mobile charger even when the fan is not running. Then it is given to a Multi-Pin plug Mobile Charger Cord or may even be charged via USB cable. The main theme is to provide charge for the mobile under any emergency cases and it is done not by charging via the residential power line but through generating power from the DC motor during traveling, storing and using it. This could be greatly useful in the case of mobile charging in the car and bikes. Instead of charging the mobile from a cigarette pin point and consuming the power from the battery of the car, the fan could be fixed near the grill of the vehicle and during traveling, due to the speed of air the fan rotates. Thus generating and storing DC which could be used for charging the mobile. Hence it is time saving since the charging of the mobile could be done during the traveling itself and also without the consumption of car/bike battery

A. Figures

eISSN: 2395-1648

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Standardized Value: 5.71

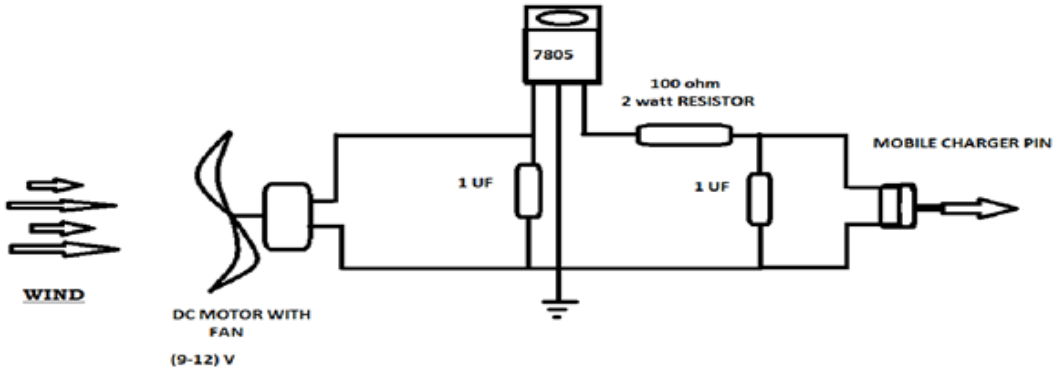

Fig. 1. Emergency Mobile Charger

III. WORKING

The Emergency Mobile Charger's construction is given in detail in above passages. Now coming to the working part, it is so interesting that we could generate the power required to charge our mobile phone when ever required. As discussed we have a motor attached with a fan when we place this outside (it consists of a small magnet so that while traveling it could be attached to the vehicles body) - in case of bus or train or It is fixed near the grill in case of car/bike. while traveling it gets rotated and it is capable of producing (9 to 12)Volts based on the speed of the vehicle, which is then fed into the voltage regulator IC 7805. When (9 to 12)V is passed through the IC 7805, we get a constant 5V as output which is more than exactly enough to charge our Mobile Phone's, MP3 Players, etc… This is also practically executed and tested with Nokia, Samsung, Sony, LG, Celkon, Micromax, Sony MP3 player, also local brand MP3 players.

The main thing in this mobile charger is that the speed of the vehicle which constitutes the RPM of DC motor, The practically tested case is from 15 km(in car/bike) speed is enough for the fan to rotate. I have practically tested the prototype both in vehicle and also placing it in front of a table fan. So while moving at any speed from 0 Km in vehicle the fan attached to 9V motor starts rotating based on the speed of the vehicle. We use this energy, store it and consume it for charging our mobile phones either by using Multi-Pin charger or by using USB cable.

IV. PRACTICAL TESTING

I have practically tested the Emergency mobile charger prototype both in vehicle and in front of table fan. So the speed would be an average of 30 km speed (in vehicle) and it took around 25 minutes to charge my Mobile (30 - 32)%, I also tested this charger in bus where in 30 minutes of travel it charged the MP3 player to some level (I could not find the battery percentage in the MP3 player), but it lasted for 2 days as a usual one that used to behave when charged to 100% by normal method instead of the Emergency mobile charger.

V. ADVANTAGE

The main advantage in this is we can charge our any brands of mobile phones, Mp3 Player, without the usage of any batteries. This may be really useful during traveling. Where our smart phones consume lot of charge while surfing through Internet. If we have this kind of Mobile charger we need not worry about the battery. It is so handy and can be carried anywhere easily.

VI. COST ANALYSIS

The cost of the entire circuit is exactly Rs.160. But the effectiveness is that it is so handy and the suggestion is that it can be given as a additional charger along with the Mobile Handset on purchase itself.

eISSN: 2395-1648

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VII. VIDEO

Please scan the below QR code to view the working prototype video of Emergency mobile charger .

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