

Re: Vampire phone problem! how to bypass internal battery

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- *From:* Chris Jones <luginut808@xxxxxxxxxxxxxxxxxxxx>
 - *Date:* Mon, 29 May 2006 00:45:30 +0100
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Kaos wrote:

Hello,

Introduction

Please can someone help me with a problem I've got. I have recently bought two GPS enabled GSM mobile phones with the view of installing them in each of my cars as a cheap tracker.

The basics all worked out, a 50 pence pay as you go sim card from Orange, hard wire a 12V phone charger into the cars electrics and hide the phones behind the trim.

They work a treat, they appear to get decent GPS reception and when a query is sent via SMS they respond with the location, speed and direction of travel of the car – together with the battery charge level. However, there is a problem!

The phones (Benefone Track One's) appear to be very thirsty when the GPS function is switched on. Of the three GPS settings, the highest (FULL) only gives the phones about a 8hr standby – which is useless. The next power setting down (LOW) extends the standby to about 30 hrs, and the final option is off – whereby I get about 5 days standby, but with the GPS functions disabled.

The good news is that these settings can be sent remotely via SMS, and you can get the phone to switch between Low and Full mode automatically when external power is presented (for example on ignition of the car). If the phones go completely flat, they automatically switch on when external power is presented as well. (thanks for bearing with me so far!).

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Problem

The phone charger flattens the car battery if left on constant power. On my BMW (80amp 12V battery) it only takes about three days if the car isn't driven for the battery to get low enough not to start the car. If I put the charger on the ignition wire, its obviously fine – but the tracking is only possible if the engine is on since the car chargers don't seem to ever fully charge the phones I get nothing like five days standby power.

In a nutshell can anyone think of a solution. I know a little bit, and have tried the following:

1 – measure the current drain of the power going into the 12v charger... Not entirely sure I got this properly, but it looks like about 200mA's

2 – buy a "battery saver" from Maplins, this plugs into the power and lets accessories use the car power until the voltage drops to 11.8V and then it cuts the power... Nice in theory, but it only delays the problem. If I went on holiday for two weeks, the phone charger would probably stop getting power after a day, and then there is a risk by the time I get back the battery may have dropped due to other factors like the car alarm and then I'm stuck again with a car that doesn't start.

3 – bypass the phone battery. If I remove the phone battery there are four terminals. Measuring the power from the battery it appears that the phone runs on 5V. If I connect just the +ve and –ve to the phone it powers up for a little while and reports 'battery fault' and eventually switches off. The good news is the consumption here seemed to be much lower (about 80mA I think).

4 – even bigger problem. To make matters worse, if the phone has been flat in the car for more than a couple of days, it does not switch on when power is presented. The only solution appears to be to get the phone out of the car (removing trim etc!) and use a mains phone charger for 4 hrs, at which point the phone will power up next time power is presented.

To say I'm fed up is an understatement. In the ideal world it would be nice to have a phone that's constantly on FULL power mode feeding from the car battery in a way that does not flatten the car after a few days. In the event of the car battery being removed, then it would be a bonus for the phone to then fall back onto its own battery. The latter does not appear to be possible however, so I'm hoping that someone knows of a way of fixing this for me.

I'd be happy if I knew that the car could sit for three weeks without been driven, and still have enough power to start up after keeping the GSM

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phone active.

Anybody got some ideas?

Thank you.

With the charger disconnected: Try connecting wires from EVERY ONE of the terminals of the freshly charged phone battery to the corresponding contacts on the phone (connect all of them so you don't get the battery fault message) and then measure the current in the phone battery + wire, in the FULL tracking mode that interests you. This will tell you what the basic power consumption of the phone is and will allow you to figure out if this task is even theoretically possible with that phone. It may be that the charger is inefficient or wasteful, or it may be that the phone just uses a lot of power. By doing the above test we will know which. Note that the phone battery voltage is less than the car battery voltage (I would suspect that it is a single lithium cell which is 4.1 or 4.2V fully charged and about 3V when at the end of discharge.) Because the phone battery has a lower voltage than the car battery, an efficient charger (switched mode) can actually provide more current to the phone battery than is being drawn from the car battery. For example, if the phone draws 30mA average at 4V, then using a perfectly efficient charger this could theoretically just be kept charged by using 10mA at 12V, since in each case the volts times amps is 120 milliwatts. If you allow the phone to take say 10 Ampere-hours out of the battery then with an ideal charger this would last for $10\text{Ah}/(0.010\text{A}) = 1000$ hours. Of course these are example numbers and your measurement is needed to get the real answer.

Chris

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