FORM 2

THE PATENT ACT 1970

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The Patents Rules, 2003

COMPLETE SPECIFICATION

(See section 10 and rule 13)

1. TITLE OF THE INVENTION:

IEG-POWER BANK: INTEGRATED ELECTRONICS GAUGEATE POWERBANK

Name	Nationality	Address
DR. USHA BATRA	AN INDIAN NATIONAL	GATE NO 3: G D GOENKA EDUCATION CITY, SOHNA - GURGAON ROAD, SOHNA, HARYANA-122103,INDIA
DR. MANJU KHARI	AN INDIAN NATIONAL	AMBEDKAR INSTITUTE OF ADVANCED COMMUNICATION TECHNOLOGIES AND RESEARCH,COMPUTER SCIENCE AND ENGINEERING DEPARTMENT, UNDER GOVT. OF NCT OF DELHI-110031, manjukhari@yahoo.co.in
DR. KHALEEL AHMAD	AN INDIAN NATIONAL	DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY, MAULANA AZAD NATIONAL URDU UNIVERSITY, GACHIBOWLI, HYDERABAD-500032, khaleelamna@gmail.com
DR. SURBHI BHATIA	AN INDIAN NATIONAL	KING FAISAL UNIVERSITY, DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY, SAUDI ARABIA, ALSHSA- 31982, PO. BOX. 400, e-mail: shbatia@kfu.edu.sa
MR. KENDRE MAHESH VINAYAK	AN INDIAN NATIONAL	NEAR MATOSHRI MARATHI SCHOOL, KARADNAGAR, AHAMADPUR, LATUR,MAHARASHTRA 413515
MR. UBALESOURABH MAHESH	AN INDIAN NATIONAL	B/9,KRISHNAPARK,MUMBAI-BANGLORE HIGHWAY, WARJEMALWADI, PUNE.
MRS. HARSHADA VISHAL MHETRE	AN INDIAN NATIONAL	2, GAURI SHANKAR HO SO. DHANKAWADI PUNE-411043, MH, INDIA E-MAIL: harshada.mhetre30@gmail.com
MR. SAMIR MISHRA (RAMA UNIVERSITY)	AN INDIAN NATIONAL	RAMA UNIVERSITY, NH-91, RAMA CITY, KANPUR UP-209217, INDIA

REAMBLE TO THE DESCRIPTION

PROVISIONAL	COMPLETE
The following specification describes the	the following specification Invention. Particularly describes the invention and the manner in which it is to be performed.

FIELD OF THE INVENTION

[10] The invention **"IEG-POWER BANK"** relates to a portable power bank, and more particularly to a multifunctional portable power bank that is conveniently portable and also supply of electric power for charging other electronic devices at any time.

BACKGROUND OF THE INVENTION

[20] We have seen power bank for smart phones, as well as power backup for personal computers as UPS, sometime we face problems to get power supply So we invented Universal power bank for laptop which is smart and compact size which helps to charge laptop.

[30] In comparison with Omani charger which is invented in USA is similar in function, it has low output power (110v) than ours (more than 230v), on which we can charge laptop as well as run other home appliances of (150w rating) , Omani charger is not compactable with home appliances. Omani charger has high production cost (more than 17k), our charger has low production cost (from 6k to 10k).

[40] A wide range of portable electronic devices currently available in the market, such as smart phones, tablet computers and the like, has been configured to support fast-response and human-centered applications. For this purpose, advanced processors and many sensing elements are employed in designing the portable electronic devices. However, since the advanced processors and sensing elements consume a high amount of power during the operation thereof, the portable electronic devices using them must be supplied with supplementary power from time to time.

[50] Currently, storage devices are provided for data access by users. For example, the portable power bank for mobile phone, NAND Flash storage and hard disk drive all are very common storage devices. Among others, the power bank also serves as a personal wireless server and a large-capacity storage device, but it has a relatively big volume and is therefore not conveniently portable.

In recent years, due to the popularization of Universal Serial Bus (USB) interface and flash memory, USB flash disk—an alternative product having big storage capacity, excellent compatibility and good portability—has been developed to enable convenient data transmission and transfer between different computers and storage devices.

[60] Further, a mobile hard disk drive (HDD) combining an external HDD tray with a removable HDD or a USB flash disk is developed. Data on the mobile HDD can be accessed and transmitted by connecting the mobile HDD to a USB interface. However, the above data access and transmission requires a cable.

[70] When a user wants to copy and transfer data on the mobile HDD via a wireless network, the user must also carry about a wireless network card, a mobile storage device and a mobile power supply with him or her. Since the mobile storage device does not include any power supply unit, it has to be powered by the mobile power supply to enable normal operation thereof and is therefore not convenient for use. Moreover, while the mobile storage device provides a relatively big storage capacity, it is heavy and bulky and accordingly not suitable for carrying about with the user. The present invention relates to mobile power technology and, more particularly, to a mobile power bank capable of charging electronic devices, jump starting an ignition system of a vehicle with a weak or dead battery, and operating as a flashlight.

[80] A car needs high, instantaneous voltage current to achieve ignition start, usually provided by a car battery. However, when there is insufficient power from the car battery to start ignition, the traditional solution is to wait for a tow truck service to assist with jump starting the car battery. Waiting for a tow truck to arrive may cause substantial delay and inconvenience.

[90] To solve this problem, there are traditional mobile jump starters that can be used to jump start a car battery by connecting cable clamps to the positive and negative posts of the car battery to start vehicle ignition. However, these traditional portable jump starters only have a single function and cannot meet the

demand for multi-function mobile power. Moreover, often traditional portable jump starters are large and inconvenient to carry and store. Accordingly, there is a need for an improved jump starter that remedies the shortcomings of the prior art and provides additional functionality.

PRIOR ART STATEMENT

US8541985B1

[100] A multifunctional portable power bank includes a main body having a circuit board and a battery arranged therein. The circuit board includes a first control unit, a second control unit connected to the first control unit, and a wireless transmission unit connected to the second control unit. The first control unit controls an input voltage of an external power supply and an output voltage of a battery power of the battery, and informs the second control unit to turn on. The second control unit enables a wireless access via the wireless transmission unit or an access via the Ethernet, and enables a router mode or a network service mode. With these arrangements, the multifunctional portable power bank not only enables data access via local or wireless networks, but also supplies electric power for charging other electronic products connected thereto.

US9506446B2

[110] An apparatus for providing power, the apparatus having a housing; a battery module positioned inside of the housing, the battery module having: a battery, a battery circuit board coupled to the battery and an ignition output port coupled to the battery circuit board; a circuit board positioned inside of the housing and coupled to the battery module, the circuit board having: a charge module, a discharge module, a lighting module and a control module coupled to the charge module, the discharge module and the lighting module; a light source coupled to the circuit board; and wherein the apparatus is configured to provide sufficient power to jump start a vehicle.

US20090179610A1

[120] The invention provides a mobile power bank for charging a portable electronic device. The mobile power bank includes a casing, a printed circuit board disposed in the casing, a rechargeable battery disposed in the casing and electrically connecting to the printed circuit board, a curly transmission wire, and an adapter tip. The curly transmission wire passes through the casing and electrically connects to the rechargeable battery via the printed circuit board. The adapter tip is coupled to the curly transmission wire and electrically connecting to the portable electronic device.

US8446126B2

[130] A power bank apparatus with speaker combines the function of power bank and the function of speaker. The power bank apparatus not only charges the portable electronic apparatuses but also supplies power to the internal speaker. The voice or music of the portable electronic apparatus is amplified by the speaker of the power bank apparatus to improve the quality of the voice or music.

US20140300311A1

[140] An apparatus for charging and discharging an electrical device in vehicle is provided. The apparatus comprises a switch, first and second power sources, and first and second contactors. The first power source is configured to provide a low voltage. The switch is configured to enable/disable the first power source. The second power source is configured to provide a high voltage for charging the electrical device. The first contactor is operable coupled to the first power source and to the second power source, the first contactor being configured to enable the second power source to provide the high voltage for charging the electrical device in response to the switch enabling the first power source. The second contactor is operable coupled to the first power source and to the second power source, the second contactor being in an open state in response to the switch enabling the first power supply.

US20150194822A1

[150] An integrated power bank includes an electric energy stored unit, a power control unit, a first I/O unit, and a second I/O unit. The electric energy stored unit has a battery set. The power control unit is electrically connected to the electric energy stored unit. The first I/O unit is electrically connected to the power control unit, and has a triggered circuit. The triggered circuit is operated on a first mode or a second mode. The second I/O unit is electrically connected to the power control unit, and has a charging protocol circuit and a data protocol circuit. The charger circuit is enabled and the data protocol circuit is disabled when the triggered circuit is operated in the first mode. The charger circuit is disabled and the data protocol circuit is enabled when the triggered circuit is operated in the second mode.

OBJECTIVE OF THE INVENTION

[160]

1 The Objective of this invention is Easy to carry.
2 Another Objective of this invention is to Charge it from anything and charge anything with it.
3 Another Objective of this invention is to reduce Compact in size.
4 Another Objective of this invention is to Affordable in cost.
5 Another Objective of this invention is to Microcontroller is used (smart working).
6 Another Objective of this invention is to comfortable to use or carry.
7 Another Objective of this invention is to WIFI- Charger faculty provide

SUMMARY OF THE INVENTION

[170] Like most innovative, Universal power bank was invented from our own personal needs. We carry around us power bank that charges our smartphone, but sometimes we need a power outlet to charge our laptops while traveling. Running out of power with no access to a socket sometimes. For that solution We have tried to do something different than others.

To multifunctional portable power bank according to the present invention includes a main body internally defining a chamber, in which a battery is mounted; and a circuit board arranged in the chamber of the main body and connected to the battery. The circuit board includes a buck converter connected to a first connector and the battery; a booster connected to the battery and a second connector; a first control unit connected to the buck converter, the booster, a changeover switch and an LED indicator for controlling the buck converter to reduce an external power supply supplied thereto to a voltage matching that of a battery power of the battery and controlling the booster to boost the battery power supplied thereto to a preset voltage; a second control unit connected to the first control unit and a wireless transmission unit, and including a connection interface, an Ethernet interface, and a plurality of modules supporting network and file access for controlling network/cloud data transmission and access; an Ethernet connector connected to the Ethernet interface; a regulator connected to the battery and the second control unit, so that the battery power is supplied to the second control unit and the wireless transmission unit via the regulator; and a connector unit connected to the connection interface of the second control unit, a flash memory and a third connector. The connector unit includes a hub/switch and a controller; the hub/switch is connected to the controller and the third connector, and the controller is connected to the flash memory.

[180] The main body includes an upper case and a lower case connected to each other to define the chamber there between. The upper case has a top wall and a plurality of sidewalls perpendicularly and downwardly extended from peripheral edges of the top wall. The top wall is provided with a push button corresponding to the changeover switch and a plurality of light-transmitting sections corresponding to the LED indicator. One of the sidewalls is provided with a plurality of through holes corresponding to the first connector, the second connector, the third connector, and the Ethernet connector, respectively.

[190] According to the present invention, the first, second and third connectors are USB connectors, the connector unit is a USB connector unit, the hub/switch is

a USB hub/switch, and the controller is a USB controller; and the connection interface is a USB connection interface.

[200] According to the present invention, the second connector is configured for connecting to a device to be charged, so as to charge the device; and the third connector is configured for connecting to an external storage device, so that the second control unit uses the external storage device as an expanded access device.

[210] According to the present invention, the external storage device includes, but not limited to, a hard disk drive, a card reader or a pen drive; the plurality of modules supporting network and file access include a server module, a router module, a cloud storage management module, a file system module and a secure sockets layer (SSL) module.

[220] According to the present invention, the first control unit and the second control unit are connected to each other via a bus; and the wireless transmission unit includes an antenna.

[230] The present invention according to an embodiment provides a mobile power bank, vehicle ignition system jump starter, and a flashlight. The mobile power bank is capable of jump starting a vehicle by providing power for a vehicle ignition and starter motor.

[240] Accordingly, the present invention according to an embodiment is directed to an apparatus for providing power comprising: a housing; a battery module positioned inside of the housing, the battery module further comprising: a battery, a battery circuit board coupled to the battery and an ignition output port coupled to the battery circuit board. The apparatus further comprises a circuit board positioned inside of the housing and coupled to the battery module, the circuit board further comprising: a charge module; a discharge module; a lighting module; and a control module coupled to the charge module, the discharge module and the lighting module. The apparatus further comprises a light source

coupled to the circuit board. The apparatus is configured to provide sufficient power to jump start a vehicle.

[250] In an embodiment, the ignition output port outputs power at a voltage higher than about 13.6 volts. The ignition output port may further comprise a positive and negative barrel jack. The battery may comprise a lithium iron phosphate battery cell or a lithium cobalt oxide battery cell. Optionally, the battery circuit board is configured to boost battery voltage output to the ignition output board to above about 13.6 volts.

[260] The charge module may further comprises a constant current and constant voltage input circuit, an over-charge and over-voltage protection circuit, and a charging module power test circuit. Optionally, the discharge module further comprises a constant current and constant voltage output circuit, a discharge module over-discharge protection circuit, and a discharge module power test circuit. The lighting module may further comprise a lighting module over-discharge protection circuit and a lighting module power test circuit. The battery circuit board may be coupled to the circuit board by a ribbon cable.

[270] In an embodiment, the apparatus further comprises a charging port coupled to the charging module, at least one Universal Serial Bus interface coupled to the discharge module, and a Light Emitting Diode indicator module coupled to the circuit board. The Light Emitting Diode indicator module is configured to indicate a charge level of the battery. Optionally, the charging port, the at least one Universal Serial Bus interface, Light Emitting Diode indicator module, and ignition output port are sequentially arranged on a side of the housing. The apparatus may further comprise two Universal Serial Bus interfaces, wherein the ignition output port is positioned adjacent to a first side of the charging port, and the two USB (Universal Serial Bus) interfaces are positioned adjacent to a second side of the charging port and the Light Emitting Diode indicator module is positioned in between the two Universal Serial Bus interfaces.

[280] In an embodiment, the circuit board further comprises a master control button and the housing further comprises a button cap positioned adjacent the master control button such that operation of the button cap causes operation of the master control button. Optionally, the apparatus further comprises an external charging circuit adapter having a first end couple able to the charging port and a second end couple able to an external power supply. Optionally, the apparatus further comprises a vehicle ignition cable having a first end couple able to the ignition output port and a second end couple able to terminals of a vehicle battery. In an embodiment of the present invention, the apparatus is configured to be storable in a clothing pocket, carry bag, glove box or trunk of a vehicle.

BRIEF DESCRIPTION OF THE DIAGRAM

[300]

Fig.1:Block Diagram
Fig.2: Process Diagram
Fig3. Powerbank connection status

DESCRIPTION OF THE INVENTION

[310]

Fig.1:

1. **Batteries:-**Li-ion/li-po batteries are available in compact cylindrical shape as well as flat rectangular shape so, this can be adjust in any size. For this power bank 3.7v 5200mah >3C li-ion/li-po battery cell 6 piece in 2p3s battery cell arrangement.
2. **BMS Li-ion/li-po overcharge discharge protection board:-** Li ion Battery management system overcharge/discharge protection board is used to equally charge all battery cells, this doesn't allow the battery to Over charge and over discharge. By using this the direct output and charging can be done.
3. **DC-AC(12V-220V)power conversion circuit:-** we designed this circuit to get 220v AC output from 12v/24v DC. It gives more than 150W output power. At 65W load it consumes 2.5A-3.8A current from batteries which is used.

4. **Wireless mobile charger module:-** To charge smart phones which supports wireless charging.
5. **Buck converter for USB output:-** This converters are used to charge the smart phones and tablets which gives 5v 2A power supply.

[320] Outside of home while working on laptop it not possible always to get power supply to charge the laptop. By taking this consideration we invented successfully Universal power bank for laptop. So we can charge laptop twice at single charge of Universal power bank (depends upon batteries capacity it varies). As well as smart phones can be charge with wired and wireless. User can charge this Universal power bank by using his laptop charger or smartphone charger. There is no need to carry another charger for this power bank. There are plenty of these in market, at a wide range of price points. No one of these are like ours, we have tried to do something different than others.

[330] Power bank for smart phones are already available in market. UPS is available for backup of PC's but it is not possible to carry UPS while travelling or outside of home to charge laptop. For this solution we have invented Universal power bank. Which is compact in size, easy to carry, easy to charge, cheap in price, Charge it from anything and charge anything with it. To charge this power bank user doesn't need to carry extra charge. This USB port is of 5v 2A output power. This power bank have 150watt, normally laptop charger consume near about 65watt. Not only laptop we can use any electric appliances like (TV., home theatre, hair drier, PC, etc. which is of 150w on this power backup. Digital display to monitor. Which shows battery percent, connected device etc.

ADVANTAGES OF THE INVENTION

[340]

1. We can charge laptop in absence of electricity.
2. We can use any electrical appliance which is up to 150W.
3. No need to carry extra charge for this universal power bank user can charge it with any power supply of 12v-20v.

WE CLAIMS

[350]

1. As well as smart phones can be charge with wired and wireless. User can charge this Universal power bank by using his laptop charger or smartphone charger. There is no need to carry another charger for this power bank. There are plenty of these in market, at a wide range of price points. No one of these are like oar's, we have tried to do something different than others. Power bank for smart phones are already available in market. UPS is available for backup of PC's but it is not possible to carry UPS while travelling or outside of home to charge laptop. For this solution we have invented Universal power bank. Which is compact in size, easy to carry, easy to charge, cheap in price, Charge it from anything and charge anything with it. We claim the following with the present idea:
2. According to claims1# the invention is to provide the comfortable to charge it with any supply of 12v-18v, AC/DC
3. According to claims1# the invention is to reduce size and weight as well as manufacturing cost .
4. According to claims1# the invention is to provide Wireless smartphone charging.
5. According to claims1# the invention is to provide Sine wave 50Hz 230v AC output.
6. According to claims1# the invention is to provide Removable batteries.
7. According to claims1# the invention is to provide Digital display see battery alerts.
8. According to claims1# the invention is to WI-FI charger facility available.

Dated this ……2019

DR. USHA BATRA
DR. KHALEEL AHMAD
MR. KENDRE MAHESH VINAYAK
MRS. HARSHADA VISHAL MHETRE
DR. MANJU KHARI
DR. SURBHI BHATIA
MR. UBALESOURABH MAHESH
MR. SAMIR MISHRA (RAMA UNIVERSITY)

ABSTRACT

[360]

My Invention ”IEG-POWER BANK” if fully dependents of electronics gaugeate all of you know we face problems to get power supply outdoor so we invented Universal power bank for laptop which is user friendly and compact size. We carry around us power bank that charges our cell phone, but often times we found ourselves in need of a power outlet to charge our laptops while traveling. Running out of power with no access to a socket sometimes means no productivity, which isn’t an option in today’s demanding and time-sensitive environment. By taking this consideration we invented successfully Universal power bank for laptop. So we can charge laptop twice at single charge of Universal power bank (depends upon batteries capacity it varies). As well as smart phones can be charge with wired and wireless. User can charge this Universal power bank by using his laptop charger or smartphone charger. There is no need to carry another charger for this power bank. There are plenty of these in market, at a wide range of price points. No one of these are like oar’s, we have tried to do something different than others. Power bank for smart phones are already available in market. UPS is available for backup of PC’s but it is not possible to carry UPS while travelling or outside of home to charge laptop. For this solution we have invented Universal power bank. Which is compact in size, easy to carry, easy to charge, cheap in price, Charge it from anything and charge anything with it. To charge this power bank user doesn’t need to carry extra charge. This USB port is of 5v 2A output power. This power bank have 150watt, normally laptop charger consume near about 65watt. Not only laptop we can use any electric appliances like (T.V., home theatre, hair drier, PC, etc. which is of 150w on this power backup. Digital display to monitor. Which shows battery percent, connected device etc.