Office of the Controller General of Patents, Designs & Trade Marks
Department of Industrial Policy & Promotion,
Ministry of Commerce & Industry,
Government of India

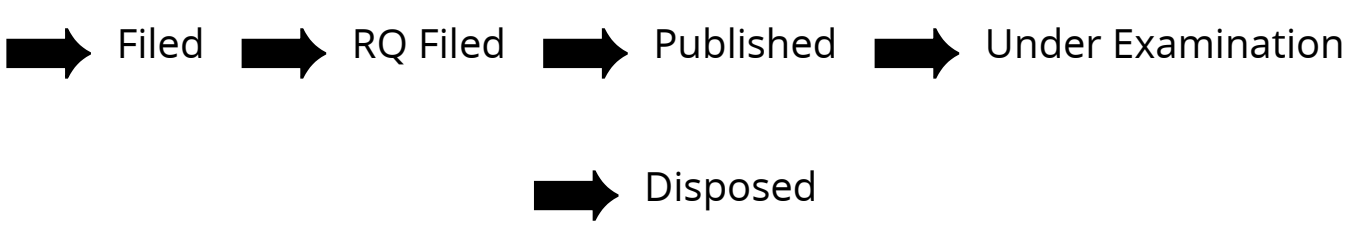
(http://ipindia.nic.in/index.htm)

(http://ipindia.nic.in/index.htm)

Application Details	
APPLICATION NUMBER	202211036914
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	28/06/2022
APPLICANT NAME	Motilal Nehru College, University of Delhi
TITLE OF INVENTION	SOLAR POWER BANK
FIELD OF INVENTION	ELECTRICAL
E-MAIL (As Per Record)	info@unipatrde.com
ADDITIONAL-EMAIL (As Per Record)	unipatrde@gmail.com
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	28/06/2022
PUBLICATION DATE (U/S 11A)	08/07/2022

Application Status	
APPLICATION STATUS	Application Awaiting Examination

View Documents



In case of any discrepancy in status, kindly contact ipo-helpdesk@nic.in

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :28/06/2022

(21) Application No.202211036914 A
(43) Publication Date : 08/07/2022

(54) Title of the invention : SOLAR POWER BANK

(51) International classification :H02J0007000000, H01M0010052500, H02S0020300000, H02J0007350000, H01L0031048000
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

(71)**Name of Applicant :**
1)Motilal Nehru College, University of Delhi
Address of Applicant :Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Rahul Mundhra
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
2)Sunidhi Sharma
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
3)Dhanraj Johari
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
4)Seerat Dang
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
5)Prashant Singh
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
6)Parth Mehta
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
7)Ashmit Dubey
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
8)Akshit Mishra
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
9)Hriday Gumber
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
10)Gazal Aggarwal
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
11)Aditya Singh
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
12)Harshita Singh
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
13)Sagnik Kar Roy
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
14)Mehul Goel
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------
15)Dipanshu
Address of Applicant :Motilal Nehru College, University of Delhi, Benito Juarez Marg, New Delhi-110021, India New Delhi ----------

(57) Abstract :
In an aspect, the present disclosure discloses a solar power bank (100). The solar power bank (100) includes a solar panel (102) of at least 6 Volts; a plurality of lithium-ion rechargeable batteries (104), each battery of at least 3.7 Volts; and a photon sensor (106) to detect amount of sunlight falling on the solar panel (102). The solar power bank (100) includes a microprocessor (108) comprising a plurality of modules. The modules include a power module (108A), a processing module (108B), and a notification module (108C) which when configured to make the solar power bank (100) completely reliable as the solar panel (102) is connected to input of the power module (108A).

No. of Pages : 17 No. of Claims : 7

FORM 2

The Patents Act 1970

(39 of 1970)

&

The Patent Rules 2003

COMPLETE SPECIFICATION

(See Section 10 and rule 13)

1. TITLE: SOLAR POWER BANK

2. APPLICANT:

2. APPLICANT(S)			
Name in Full	Nationality	Address of the Applicant	
Motilal Nehru College, University of Delhi	INDIA	House No.	**Benito Juarez Marg, New Delhi-110021, India**
		Street	
		City	
		State	
		Country	
		Pin code	

3. **PREAMBLE OF THE DESCRIPTION:** The following COMPLETE specification particularly describes the disclosure and the manner in which it is performed.

FIELD OF THE DISCLOSURE

The present disclosure generally relates to power banks. More specifically, the present disclosure relates to solar powered banks to charge electronic devices.

BACKGROUND

With modernization of life and depletion of natural resources, everyone's attention is now towards harnessing natural reserve of solar energy for daily applications such as heating, cooking, electricity, etc. Perhaps mobile phones are the electronic devices without which survival is almost impossible. The mobile phones require charging through AC source. There are different types of charges with different charging capacities available in the market. However, people travelling for longer hours often face with depletion of battery charging in their mobile phones. In most of the instances, it may be difficult when the user is unable to find any source from where he can charge mobile phone battery.

Therefore, power banks came into existence. They have storage of charge and can assist in charging the mobile phones especially during travelling. However, they get longer time to get charged. There may also be instances where the power banks require AC source to get

charging and store thereto. Consequently, the user may face aforementioned problem for charging the power bank when any AC source is not available within vicinity of the user.

Hence, there exists a need for developing an alternative which can charge the power bank continuously.

OBJECTS OF THE PRESENT DISCLOSURE

An object of the present disclosure is to overcome one or more drawbacks associated with conventional mechanisms.

An object of the present disclosure is to provide a low-cost solar power bank which charges continuously and spontaneously to store charge therein.

An object of the present disclosure is to provide the solar power bank which has a provision to display active status of the charge storage therein.

SUMMARY

Various objects, features, aspects and advantages of the inventive subject matter will become more apparent from the following detailed description of preferred embodiments, along with the accompanying drawing figures in which like numerals represent like components.

The present disclosure generally relates to solar power banks.

In an aspect, the present disclosure discloses a solar power bank (100). The solar power bank (100) includes a solar panel (102) of at least 6 Volts; a plurality of lithium-ion rechargeable batteries (104), each battery of at least 3.7 Volts; a photon sensor (106) to detect amount of sunlight falling on the solar panel (102); and a microprocessor (108) comprising a plurality of modules. The modules include such as but not limited to a power module (108A), a processing module (108B), and a notification module (108C). The solar panel (102) is connected in the input of the power module (106A) such that the voltage thereof drops to 3.7 Volts. The processing module (108B) is configured to receive and process information of solar intensity from the photon sensor (106) and amount of energy stored in the solar panel (102). The notification module (108C), which when coupled with one or more microprocessor (106) notifies a user of the charging status of the power bank (100).

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects, features, and advantages of the embodiment will be apparent from the following description when read with reference to the accompanying drawings. In the drawings, wherein like reference numerals denote corresponding parts throughout the several views:

Referring to Figure 1A, shows various components of a solar power bank (100), in accordance with an embodiment of a present invention;

Referring to Figure 1B, shows exemplary modules of the solar power bank (100), in accordance with the embodiment of the present invention; and

Referring to Figure 1C shows a circuitry involved in the solar power bank (100), in accordance with the embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The following discussion provides many example embodiments of the inventive subject matter. Although each embodiment represents a single combination of inventive elements, the inventive subject matter is considered to include all possible combinations of the disclosed elements. Thus, if one embodiment comprises elements A, B, and C, and a second embodiment comprises elements B and D, then the inventive subject matter is also considered to include other remaining combinations of A, B, C, or D, even if not explicitly disclosed.

The embodiments herein and the various features and advantageous details thereof are explained more fully with reference to the non-

limiting embodiments that are illustrated in the accompanying drawings and detailed in the following description. Descriptions of well-known components and processing techniques are omitted so as to not unnecessarily obscure the embodiments herein. The examples used herein are intended merely to facilitate an understanding of ways in which the embodiments herein may be practiced and to further enable those of skill in the art to practice the embodiments herein. Accordingly, the examples should not be construed as limiting the scope of the embodiments herein.

Many modifications will be apparent to those skilled in the art without departing from the scope of the present invention as hereinbefore described with reference to the accompanying drawings.

Throughout this specification and the claims which follow, unless the context requires otherwise, the word “comprise”, and variations such as “comprises” and “comprising”, will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

As used herein, the singular forms “a”, “an”, “the” include plural referents unless the context clearly dictates otherwise. Further, the terms “like”, “as such”, “for example”, “including” are meant to

introduce examples which further clarify more general subject matter, and should be contemplated for the persons skilled in the art to understand the subject matter.

The present disclosure relates to solar power banks.

Figure 1A shows various components of a solar power bank (100), in accordance with an embodiment of a present disclosure. The solar power bank (100) includes a solar panel (102). The solar panel (102) is of at least 6 Volts. The solar panel (102) is monocrystalline.

The solar power bank (100) includes a plurality of lithium-ion rechargeable batteries (104). Each such battery (104) is of at least 3.7 Volts. The lithium-ion rechargeable batteries (104) are connected to an output of the power module (108A). The lithium-ion rechargeable battery (104) is quartz component 18650. The lithium-ion rechargeable battery (104) produces output in the range of 2000-5000 mph. The power module (108A) is USB connected power module.

The solar power bank (100) includes a photon sensor (106) to detect amount of sunlight falling on the solar panel (102).

The microcontroller (108) includes a plurality of modules as shown in Figure 1B. The modules include such as but not limited to a power module (108A), a processing module (108B), and a notification module

(108C). As shown in Figure 1C, the solar panel (102) is connected in the input of the power module (106A) to drop the voltage thereof to 3.7 Volts. The processing module (108B) is further configured to receive and process information of solar intensity from the photon sensor (106) and amount of energy stored in the solar panel (102). The notification module (108C) is configured to notify a user of the charging status of the power bank (100) by displaying the amount of solar energy stored in the solar power bank (100) for convenience of the user.

The processors are coupled with one or more functional modules. The processor may include such as but not limited to a microprocessor, a microcontroller, a complex instruction set computing (CISC) processor, a reduced instruction set (RISC) microprocessor, or any other type of processing circuit. Furthermore, the term "processor" may refer to one or more individual processors, processing devices, and various elements associated with a processing device that may be shared by other processing devices. Additionally, the one or more individual processors, processing devices and elements are arranged in various architectures for responding to and processing the instructions that drive the system.

Advantages of the present invention

In accordance with aforementioned embodiment and related aspects of the present invention in the present disclosure, the system (100) is beneficial to users of electronic devices.

An advantage of the present disclosure is to provide a low cost and completely reliable solar power bank.

The foregoing descriptions of exemplary embodiments of the present disclosure have been presented for purposes of illustration and description. They are not intended to be exhaustive or to limit the disclosure to the precise forms disclosed, and obviously many modifications and variations are possible in light of the above teaching. The exemplary embodiments were chosen and described in order to best explain the principles of the disclosure and its practical application, to thereby enable others skilled in the art to best utilize the disclosure and various embodiments with various modifications as are suited to the particular use contemplated. It is understood that various omissions, substitutions of equivalents are contemplated as circumstance may suggest or render expedient but is intended to cover the application or implementation without departing from the spirit or scope of the claims of the present disclosure.

We Claim

1. A solar power bank (100) comprising:

a solar panel (102) of at least 6 Volts;

a plurality of lithium-ion rechargeable batteries (104), each battery of at least 3.7 Volts;

a photon sensor (106) to detect amount of sunlight falling on the solar panel (102);

a microprocessor (108) comprising a plurality of modules, the modules comprising:

a power module (108A) which when coupled with one or more microprocessor (106), wherein the solar panel (102) is connected in the input of the power module (106A) to drop the voltage thereof to 3.7 Volts;

a processing module (108B), which when coupled with one or microprocessor (106), wherein the processing module (108B) receives and processes information of solar intensity from the photon sensor (106) and amount of energy stored in the solar panel (102); and

a notification module (108C), which when coupled with one or more microprocessor (106), notifies a user of the charging status of the power bank (100).

2. The solar power bank (100) as claimed in claim 1, wherein the lithium-ion rechargeable batteries (104) are connected to an output of the power module (108A).
3. The solar power bank (100) as claimed in claim 1, wherein the power module (108A) is USB connected power module.
4. The solar power bank (100) as claimed in claim 1, wherein the solar panel (102) is monocrystalline.
5. The solar power bank (100) as claimed in claim 1, wherein the lithium-ion rechargeable battery (104) is quartz component 18650.
6. The solar power bank (100) as claimed in claim 1, wherein the lithium-ion rechargeable battery (104) produces output in the range of 2000-5000 mph.
7. The solar power bank (100) as claimed in claim 1, wherein the solar power bank (100) comprising a display to display the amount of solar energy stored in the solar power bank (100).

ABSTRACT

SOLAR POWER BANK

In an aspect, the present disclosure discloses a solar power bank (100). The solar power bank (100) includes a solar panel (102) of at least 6 Volts; a plurality of lithium-ion rechargeable batteries (104), each battery of at least 3.7 Volts; and a photon sensor (106) to detect amount of sunlight falling on the solar panel (102). The solar power bank (100) includes a microprocessor (108) comprising a plurality of modules. The modules include a power module (108A), a processing module (108B), and a notification module (108C) which when configured to make the solar power bank (100) completely reliable as the solar panel (102) is connected to input of the power module (108A).

Figure 1

Title: **SOLAR POWER BANK**

Applicant: **Motilal Nehru College, University of Delhi**

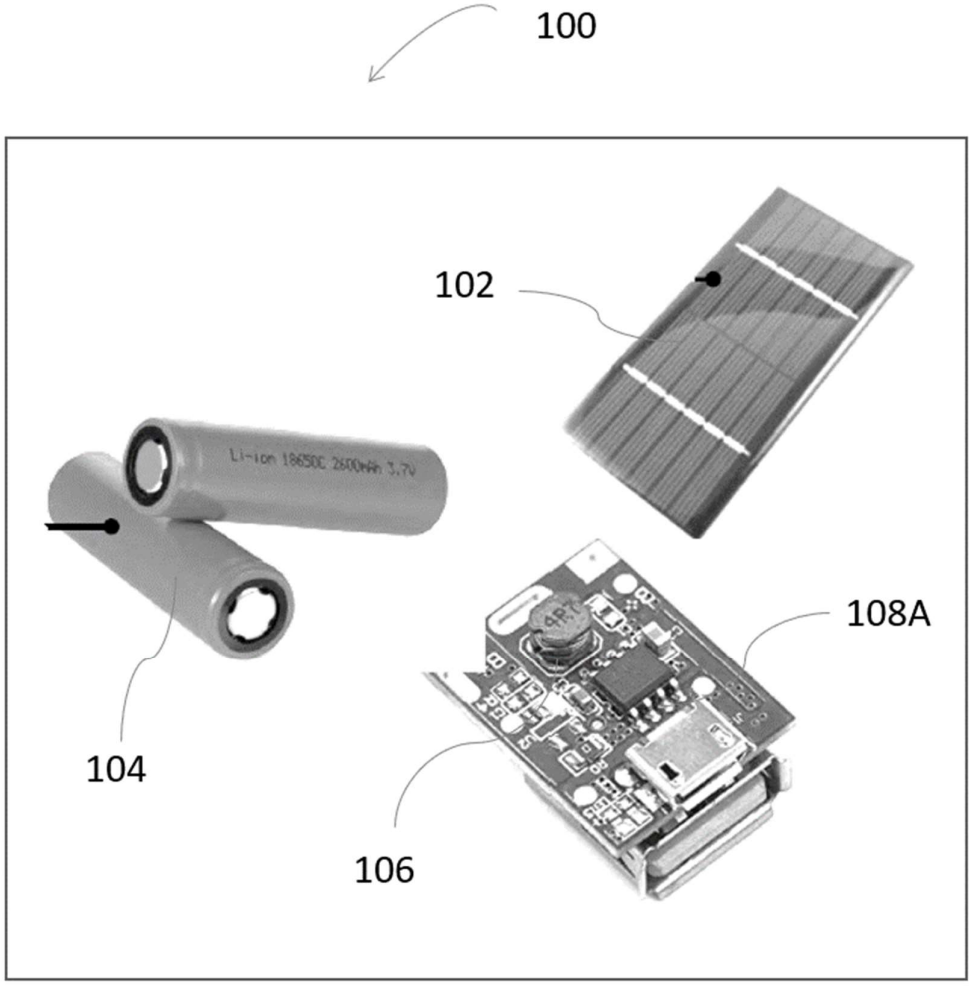


Figure 1A

Title: **SOLAR POWER BANK**

Applicant: **Motilal Nehru College, University of Delhi**

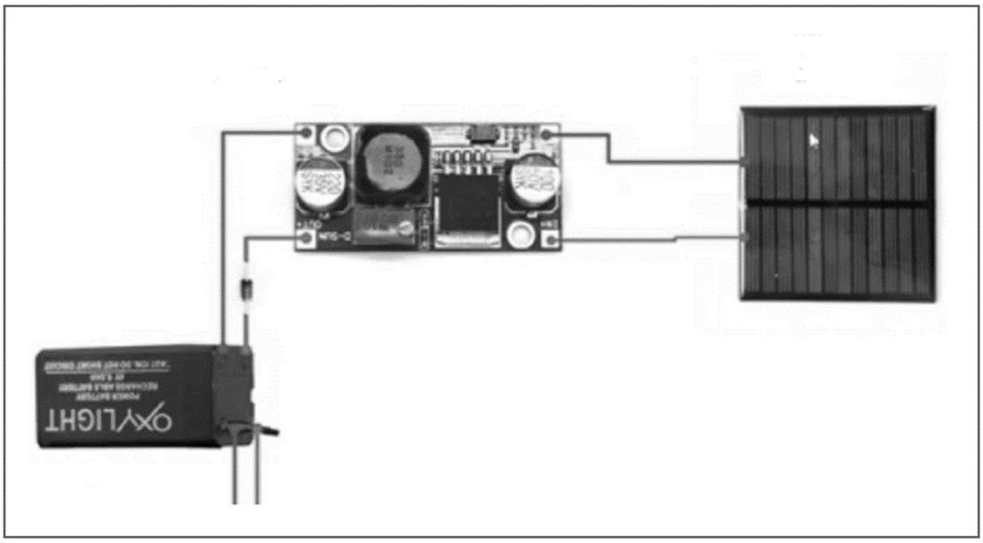


Figure 1B

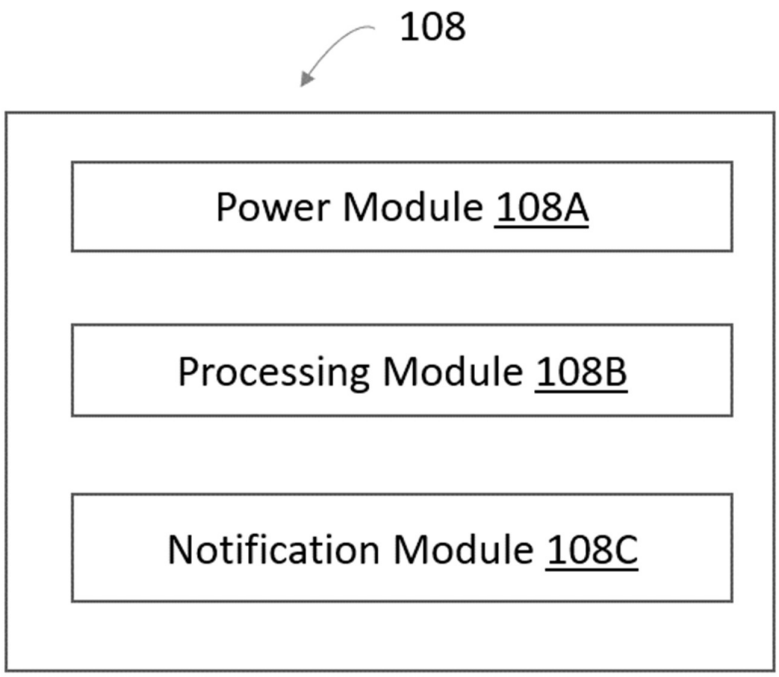

108
Power Module 108A
Processing Module 108B
Notification Module 108C

Figure 1C