

VEHICLE SEAT ASSEMBLY WITH WIRELESS CHARGING CAPABILITY

Technical Field

5 The present disclosure relates to a seat assembly usable in a mobile vehicle. More particularly, the disclosed seat assembly features a designated storage space for wireless charging of an electronic device carrying compatible and chargeable battery module. The provided storage space also safeguards the electronic device throughout the wireless charging cycle.

10 Background

Owing to the ubiquitous use of portable electronic devices such as mobile phone and tablet PC, it necessitates the need to charge these portable devices from time to time when the rechargeable battery module powering these devices is running low. However, availability of the needed power sources and ports for recharging the battery module can be restricted when the users are
15 on the move especially travelling through mobile vehicles. In view of that, different power adapters have been devised to turn lighter socket of the mobile vehicle into a power port facilitating user to charge their electronic devices inside the driving cabin. These power adapters directly tap into the vehicle battery for the electrical power required for charging the devices. To further save the driver and/or passengers from the hassle of fiddling with the power adapters,
20 most of the latest manufactured vehicle models are equipped with on-board USB ports, which are universal interface for electrically coupling the portable electronic devices to a primary power source for recharging. The driver or passengers of the vehicle can simply connect the portable electronic devices to the provided on-board USB port through a compatible USB cable.

25 However, mere on-board built-in USB port may not be sufficient considering more and more of the portable electronic devices such as smartphones are incorporated with the wireless chargeable battery module to attain better user experience. As such, effort has been put into developing new types of adapters usable in the mobile vehicle to enable on-board wireless charging of the portable electronic devices. For instance, Vourlat et al. in United States patent
30 publication no. 2015/0350397 disclose a holder for portable electronic apparatus, particularly

usable in a vehicle, integrated with a wireless charging unit suitable for electrically recharging the electronic apparatus held thereto. Similar disclosure can be found in United States patent no. 9300151 describing a electronic apparatus holder equipped with a wireless charging capability. Despite the abovementioned holders caters the wireless charging as setting out in their disclosure, these holders including the charging module are considered external parts to be installed within the driving cabin that it may be construed unsightly and disruptive to the design uniformity inside the vehicle.

China Patent no. 204131156 describes a wireless charging module almost seamlessly integrated into the driving cabin of a mobile vehicle. Particularly, the referred China patent application has an arm rest of a given seat in the vehicle carried a horizontally oriented wireless charging module for placement of the portable electronic apparatus. Laying the electronic devices on the planar surface of such wireless charging module during the charging cycle may subject the electronic devices to the risk of toppling over due to drastic manoeuvre of the vehicle like ascending up or descending down a sloping hill.

In view of the shortcomings inherently found the aforesaid disclosure, there are rooms for improvement with respect to the aspect of wireless charging inside a mobile vehicle.

Summary

The present disclosure is directed to a seat assembly for mobile vehicle carrying an enclosed storage place capable to charging a portable electronic device or apparatus wirelessly. The enclosed storage place are aligned or overlaid on top of a wireless charging module embedded or incorporated to the disclosed seat assembly to effectuate the charging.

Another object of the present disclosure aims to provide a seat assembly having integrated wireless charging space for keeping and safeguarding a portable electronic device engaged and undergoing wireless charging thereto.

Further object of the present disclosure is to offer a seat assembly having integrated wireless charging space equipped with features facilitating user's accessibility to the portable electronic devices held in the storage space.

- 5 At least one of the preceding objects is met, in whole or in part, by the present disclosure, in which one of the embodiments includes a seat assembly of vehicle comprising a seat portion including a seat top surface, seat lateral side surfaces joining to a seat front surface and a seat back surface; a backrest portion vertically erecting from the seat portion around the seat back surface, the backrest having a backrest front surface, a backrest rear surface, a lateral outboard
10 surface and a lateral inboard surface; a storage pocket formed on at least one of the seat front surface, the backrest rear surface, and the lateral inboard surface enclosing a storage space therein accessible through a top opening of the storage pocket; a wireless charging module embedded to the seat assembly at a position substantially corresponding to the storage pocket. Preferably, the wireless charging module is configured for wireless charging of a compatible
15 battery module of an electronic device kept within the storage space.

In a number of embodiments, the interior surface of the storage pocket are overlaid or coated with fire retardant materials.

- 20 In several embodiments, the wireless charging is performed by way of inductive charging through at least two different inductive coils. The at least two induction coils are arranged on a same plane in a partial overlapping fashion to yield a electromagnetic field of greater coverage to charge the compatible electronic device.
- 25 In order to overcome the storage pocket is partly fabricated with a plurality of apertures or meshes for dissipating heat away from the storage space.

- For a number of embodiments, the storage pocket has a bottom edge and a pair of side edges fixed to the at least one of the seat front surface, the backrest rear surface, and the lateral inboard
30 surface leaving a separable top edge to create the top opening for accessibility of the storage

space. Accordingly, the top edge forms an oblique angle of 5 to 40 degree in relation to the horizontal axis in further embodiments.

In more embodiments, the disclosed seat assembly includes a strip having an elongate body, a fixed end secured inside the storage pocket around the top opening and a free end exposed on exterior of the storage pocket such that the elongate body is capable of looping around the electronic device lengthwise upon slidably inserting the electronic device into the storage pocket, and dragging the free end away from the storage pocket pulls the elongate body out from the storage pocket pushing along the looped electronic device out from the storage space. The strip serves as a pull tab to allow user to draw the held electronic device conveniently from the storage pocket upon pulling the free end of the string.

For other embodiments, the disclosed assembly has a control module electronically connecting to the wireless charging module for user to manage operation of the wireless charging module.

According to some embodiments, the storage pocket may further include a sealed pouch located underneath of the storage space for housing the wireless charging module. For further embodiments, the sealed pouch is attached or embedded to the seat portion or the backrest immobilizing the wireless charging module thereto.

For some embodiment, the disclosed seat assembly further includes a patch pocket formed on the backrest rear surface by overlaying a fabric patch from one lateral edge to another lateral edge of rear surface of the backrest that the patch pocket is accessible through an open top located at a top edge of the patch pocket, the storage pocket being positioned on the backrest rear surface inside the patch pocket with the top edge of the storage pocket aligned with, adjacent to or almost aligned with top edge of the patch pocket.

Brief Description of Drawings

Figure 1 shows one embodiment of the disclosed seat assembly with the storage pocket and storage space fabricated on the lateral inboard surface of the backrest;

Figure 2 shows another embodiment of the disclosed seat assembly with the storage pocket and storage space formed on the backrest rear surface;

5 Figure 3 shows further embodiment of the disclosed seat assembly carrying the storage pocket and storage space on the front surface of the seat;

Figure 4 illustrates (a) one embodiment of the storage pocket and (b) the wireless charging module; and

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Figure 5 shows one embodiment of the control module taking the form of cigarette power plug.

Detailed Description

15 Hereinafter, the invention shall be described according to the preferred embodiments of the present disclosure relating to a seat assembly for mobile vehicle and by referring to the accompanying description and drawings. However, it is to be understood that the description to the preferred embodiments of the present disclosure and to the drawings is merely to facilitate discussion of the present disclosure. It is envisioned that those skilled in the art may devise
20 various modifications without departing from the scope of the appended claim.

Referring to Figure 1-3 of the present disclosure, a seat assembly 100 for mobile vehicle is illustrated. Generally, the seat assembly 100 comprises a seat portion 110 including a seat top surface 111, seat lateral side surfaces 112 joining to a seat front surface 113 and a seat back
25 surface 114; a backrest portion 120 vertically erecting from the seat portion 110 around the seat back surface 114, the backrest portion 120 having a backrest front surface 121, a backrest rear surface 122, a lateral outboard surface 123 and a lateral inboard surface 124; a storage pocket 180 formed on at least one of the seat front surface 113, the backrest rear surface 122, and the lateral inboard surface 124 enclosing a storage space 185 therein accessible through a top
30 opening 186 of the storage pocket 180; a wireless charging module 190 embedded to the seat

assembly 100 at a position substantially corresponding to the storage pocket 180. The wireless charging module 190 is configured for wireless charging of a compatible battery module of an electronic device kept within the storage space 185.

5 In a number of embodiments, the disclosed seat assembly 100 is preferably the driver seat and/or the front passenger seat set up inside the driving cabin of the mobile vehicle. Still, there are embodiments in which the seat assembly 100, being established as the back passenger seat, carries also the storage pocket 180 and the wireless charging module 190, but the storage pocket 180 may be located on any other surface of the seat assembly 100 except the rear surface 122 of
10 the backrest portion 120, which is not accessible within the driving cabin. The seat assembly 100 described herein can be installed as the back passenger seat for SUV or van. As setting forth in the foregoing, the seat assembly 100 of the present disclosure essentially comprises a seat portion 110 for supporting lower body part of the driver or passenger seated in the driving cabin; and a backrest portion 120 extended upward from the back of the seat portion 110 allowing the
15 driver or passenger to rest their torso. It is important to note that the seat portion 110 and the backrest portion 120 of the seat assembly 100 are covered with at least one fabric or fabric like material of nature and/or synthetic origin. These fabric or fabric-like coverings give rise to the various surfaces of the seat assembly 100 that at least part of the various surfaces created partly forms or defines the storage space 185 of the storage pocket 180. Furthermore, the storage
20 pocket 180 described throughout of the specification can be a pouch pocket or patch pocket. In those embodiments where the storage pocket 180 is the pouch pocket, one planar side of the pouch pocket is secured or fixed to the cover giving rise to the storage pocket 180. Alternatively, in the embodiments which the storage pocket 180 is a patch pocket, a fabric patch is overlaid onto portion of the surface of the seat assembly 100 that the interior surface of the fabric patch
25 and the overlaid surface of the seat assembly 100 defines the storage space 185 formed thereto.

In the illustration shown in Figure 1, the storage pocket 180 is located at the lateral surface, outboard 123 or inboard 124, of the seat assembly 100. Still, if the storage pocket 180 is located at the lateral outboard surface 123 of the backrest portion 120, an outsider of the mobile vehicle
30 may easily get access or hold to the electronic device keeping in the storage pocket 180 when the

side glass window of the mobile vehicle has been rolled down or broken. To protect the electronic device from unwanted access, the present disclosure preferably places the storage pocket 180 on the lateral inboard surface 124 of the backrest portion 120. By strategically positioning the storage pocket 180, the present disclosure enhances safety towards the charging electronic device yet accessibility to the charging device within the driving cabin is unhindered. Taking the inboard position inside the driving cabin, the wireless charging module and the storage pocket poses less disruption to other safety features in the mobile vehicle. For example, some of the mobile vehicles have airbag installed around the outboard area either on or around the side door that smooth discharge of the airbag in the occurrence of accident may thus be interfered if the wireless charging module is located at an outboard location. Preferably, the storage space 185 of the storage pocket 180, positioned on the inboard lateral surface 124 of the seat assembly 100, is sized and shaped to hold the electronic device such as smart phone preferably in an upright position with the top opening 186 of the storage pocket 180 located on the lateral inboard surface 124 at a level, but not limited to, substantially corresponds to the position of the upper arm of the driver or adult passenger rested on the seat assembly 100. In some other embodiments, the storage pocket 180 may be more ergonomically attached to the lateral inboard surface 124 by slightly skewing or curving towards the driving panel of the mobile vehicle rather than adapting an upright position as setting out above.

Referring to Figure 2, the present disclosure has the storage pocket 180 created at the rear surface 122 of the backrest portion 120. According to several embodiments, the storage pocket 180 is located about the midsection of the backrest rear surface 122. In further embodiment, the storage pocket 180 may take up a substantially inboard position as well to avoid undesired accessibility towards the phone through an environment external to the driving cabin. The present disclosure preferably spaces the storage pocket 180 on the backrest rear surface 122 away from the glass panels on the side doors of the mobile vehicle. For the storage pocket 180 to be integrated into the general design of the rear surface 122, some embodiments of the present disclosure may adaptably arrange the storage pocket 180 within a relatively larger general patch pocket fabricated on the backrest portion 120 for common use. More particularly, the general patch pocket 210 is formed on the backrest rear surface 122 by overlaying a fabric patch 211

from one lateral edge 212 to another lateral edge 212 of rear surface 122 of the backrest portion 120. Preferably the general patch pocket 210 raises substantially from the bottom edge 215 of the backrest rear surface 122 to a level about midsection or half of the length of the backrest portion 120 though such configuration is not necessarily uniformly implemented across various
5 embodiments of the present disclosure. The patch pocket 210 is accessible through an open top 218 located at a top edge of the patch pocket. For a number of embodiments, the storage pocket 180 is positioned on the backrest rear surface 122 inside the patch pocket 210 with the top edge 186 of the storage pocket 180 aligned with, adjacent to or almost aligned with top edge 219 of the patch pocket 210. With such arrangement, accessibility to the electronic device such as smart
10 phone is almost instantaneous in contrast to fabricating the storage pocket 180 within the patch pocket 210 at a location closer to the bottom edge 215 of the backrest rear surface 122. Notwithstanding shielding of the storage pocket 180 inside the general patch pocket 210, there are embodiments of the present disclosure that the storage pocket 180 fabricated on the backrest rear surface 122 as a standalone item separated from the patch pocket 210. Likewise, the storage
15 pocket 180 located at the backrest rear surface 122 can be dimensioned to hold the charging electronic device such as smart phone in an upright or transverse orientation depending upon preferences of the disclosed embodiments. For example, the storage pocket 180 can be adaptably fabricated with an overall length, or depth of the storage pocket 180, slightly shorter than the charging electronic device such as smart phone that at least upper or lower portion of the smart
20 phone screen outreaches the storage pocket 180 and becomes visually exposed to the driver or the passenger of mobile vehicle. By visually exposed portion of the smartphone, the present disclosure ensure important information displayed remains retrievable while subjecting the electronic device such as smartphone for wireless charging using the disclosed seat assembly 100 of mobile vehicle.

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With reference to Figure 3, another embodiment of the disclosed seat assembly 100 is illustrated in which the present disclosure has the storage pocket 180 disposed on the front surface 113 of the seat portion 110. Having the storage pocket 180 and the charging electronic device located substantially under the seat, the held electronic device acquires greater protection over undesired
30 access from someone external to the driving cabin. Therefore, the storage pocket 180 to be

positioned on the front surface 113 of the seat portion 110 may not need to take a more inboard location compared to the rest of the embodiments setting out above. Taking consideration that the driver or passenger cannot anyhow visually access the charging phone held in the storage pocket 180 on the front surface 113, the storage pocket 180 in these embodiments may be sized to fully envelope the charging electronic device such as smartphone without the need to partially reveal part of the phone screen for immediate information access.

Pursuant to other embodiments, the storage pocket 180 essentially has a bottom edge and a pair of side edges fixed to the at least one of the seat front surface 113 the backrest rear surface 122, and the lateral inboard surface 124 leaving a separable top edge to create the top opening 186 for accessibility of the storage space 185. Being the point of access for the storage space 185, the top edge of the pocket is further reinforced by way of creating a welt thereto. With the aid of the welt, the top edge or the top opening 186 of the storage pocket 180 pocket is imparted with greater resistance against wear and tear due to repetitive insertion and withdrawal of the electronic device therethrough. In addition to welt, the top edge of the pocket may be ribbed or supported with an elastic band thereto. The elastic band embedded to the top edge renders the top edge to be stretchable upon insertion of the electronic device and resuming its original state that leads to sealing of the top opening 186. The spontaneously sealing of the top opening 186 keeps dusts from being collected inside the storage pocket 180. The stretchy top edge of the storage pocket 180 may further facilitate storing of the electronic device inside the storage space 185 especially in embodiments that part of the electronic device extends out of the pocket and visually exposed. The contracting resilient top edge inevitably grasps onto the part of the electronic device extending out from the pocket thus holding the electronic device.

It is known that electronic devices like smartphone comes in different form factors to meet different preferences of the user. Smartphones of a smaller size may tend to drop too deep into storage space 185 of the disclosed seat assembly 100 if the storage pocket 180 is relatively larger in size than the smartphone. Accessibility to the wirelessly charging smartphone may be inconvenience, or even hampered. On the other hand, the smartphone of large size is likely to fall off or cannot even be fitted into the storage pocket 180 in case disclosed seat assembly 100

carries a small sized storage pocket 180. To ease the retrieval of the electronic device out from the storage pocket 180, it is preferable to have part of housed electronic device become physically accessible almost immediately for being yanked out from the storage pocket 180. Therefore, for several embodiments, the top edge forms an oblique angle of 5 to 40 degree in relation to the horizontal axis. The oblique angle that the top edge adapted is configured to allow part of the electronic device, as long within a range of form factors, outstretching or extending beyond the top edge revealing part of the stored electronic. The larger the size of the electronic device such as smartphone housed the greater portion of the device will be exposed or revealed out from the storage space 185. In these embodiments, the part of the wirelessly charged electronic device protruded out of the pocket facilitates extraction of the electronic device out from the storage pocket 180.

Furthermore, the disclosed seat assembly 100 includes a pull tab or strip for fishing or pulling the housed electronic device out from the storage space 185. Particularly, the strip has an elongate body, a fixed end secured inside the storage pocket 180 around the top opening 186 and a free end exposed on exterior of the storage pocket 180 such that the elongate body is capable of looping around the electronic device lengthwise upon slidably inserting the electronic device into the storage pocket 180. Tugging or dragging the free end away from the storage pocket 180 pulls the elongate body out from the storage pocket 180 thus pushing along the looped electronic device out from the storage space 185. For a number of embodiments, the fixed end of the strip resides inside the storage space 185 anchored preferably to the surface of the seat assembly 100 at a point approximates to the top opening 186. The elongate body of the strip can be fully accommodated inside the storage space 185 except portion the free end protruding out of the pocket poising to be tugged for drawing the strip out of the pocket. For other embodiments, one or more slot guides may be provided in the pocket to guide the strip in looping onto the inserted electronic device in the preferred fashion rather than being pushed sideways following insertion of the electronic device. The strip is threaded through the slot guides, preferably in the form of opposing faced pair with one being positioned about the fixed end and another being placed around the exit of the free end out of the pocket, fabricated inside the pocket along an imaginative symmetrical line of the pocket. The slot guides orientates the strip to slide in or out

of the storage space 185 within a narrow range of sideward movement and the restrained sideward movement ascertains constant looping of the elongate body around the inserted electronic device such as smartphone lengthwise. The strip can be automatically retract into a reel built-in with any roll up mechanism known in the art for few embodiments. The roll up reel
5 is preferably assembled to seat assembly 100.

Regardless the forms- either a patch pocket or a pouch pocket- of the storage pocket 180, the storage pocket 180 is preferably fabricated or partly fabricated from a stretchable resilient material that it needs to adaptably expand for accommodating or housing the electronic device to
10 be wirelessly charged. In fashion similar to the elastic top edge, the resilient pocket naturally contracts to resume its original form and the electronic device deposited therein is snugly held along the contracting of the resilient pocket.

In accordance with other embodiments of the present disclosure, the interior surface of the
15 storage pocket 180 are overlaid or coated with fire retardant materials. Particularly, the wirelessly electronic device held inside the storage pocket 180 for wirelessly charging may, despite extremely rare, somehow get overheated resulting the electronic device to catch on fire. The overlaid or coated fire retardant materials in the present disclosure is one of the measures implemented to avoid occurrence of any fire incidents potentially caused by the charging
20 electronic device. Preferably, the overlaid or coated fire retardant material can be any one or combination of polybenzimidazole fiber, coated nylon, modacrylic, FR cotton, wool and melamine. In other embodiments which the storage pocket 180 is at least partly produced or defined by multilayered laminate, the fire retardant may be coated or formed one of the layers of such laminate. Still, in some other embodiments, the storage pocket 180 is partly fabricated with
25 a plurality of apertures or meshes for dissipating heat away from the storage space 185. By timely removing the heat generated, the present disclosure further reduces the risk of overheating the electronic device in association with the wireless charging process. Preferably, the apertures or meshes fabricated on the lateral sides or around the bottom of the storage pocket 180.

For more embodiments, the present disclosure overlaid at least partly interior surface of the pocket with hook and loop materials. For instance, the surface of the seat assembly 100 bears a layer of the hook material in the pocket while the interior surface of fabric patch bears the loop or plush material. The hook material and the loop material are arranged in an oppositely facing fashion within the interior pocket such that the two materials can be firmly engaged or fastened to the hook material to seal the storage space 185 off. These materials may be fully or almost fully overlaid the interior of the pocket of the disclosed seat assembly 100 in several embodiments. Other embodiments of the present disclosure may place at least one strap of the hook material lengthwise on one planar surface of the pocket interior and another strap of loop material on the opposing planar surface of the pocket interior mirroring the strap of hook material. In addition, these materials can also be prepared and attached to the interior of the pocket in multiple pieces or patches that the pieces of the each material are equally spaced along the interior of the pocket in a pairing or corresponding fashion. Bringing the paired hook and loop pieces into contact with one another fasten the fabric patch or the like of the pocket to the underneath overlaid surface of the seat assembly 100. Accessibility to the storage space 185 can only be restored by separating the fastened hook and loop materials. The engaged hook and loop materials close off the pocket when the wireless charging is not required. Apart from that, the implementation of the hook and loop materials or Velcro in the disclosed seat assembly 100 almost allows the size and/or the depth of the described pocket adjustable to not only fit to accommodate the phone, but also permits the portion of the electronic device, e.g. the size of the smart phone screen, exposed or protruded out from the pocket. In general, the disclosed seat assembly 100 may further comprises a hook material and a loop material respectively carried on the opposite planar surface of the pocket interior that the size of the storage space 185 is substantially adjustable by coupling or decoupling the hook and loop materials.

It is important to note that the wireless charging described in the present disclosure is performed by way of inductive charging technology known in the art. To ensure unhindered wireless charging, the wireless charging module 190 in the present disclosure preferably possesses, but not necessary, multiple inductive coils 197 to generate the needed electromagnetic field sufficient to effectuate the wireless charging. Taking into the considerations of the form factors

and various orientations of the electronic devices inside the storage space 185, at least two separate or different inductive coils 197 are preferably arranged, same plane, on a planar surface of the wireless charging module 190 in a partial overlapping fashion to broaden the electromagnetic field coverage over the electronic device. For some embodiments, the inductive coil 197 of the wireless charging module may extend beyond the top edge or top opening 186 of the pocket under the surface of the disclosed seat assembly 100 such that the yielded electromagnetic field can radiate the whole electronic device especially in the condition where part of the electronic device, such as smartphone, held protrudes out of the pocket to ease retrieval of information displayed on the screen. The wireless charging module 190 of the present disclosure may be encompassed or housed inside a sealed pouch 183 located underneath of the storage space 185. The wireless charging module 190 can be powered by the power source like main battery or a standalone secondary battery in the mobile vehicle. A cable hole 184 can be fabricated to the sealed pouch 183 for running the wires connecting the wireless charging module to the power source. On-off switch or control module can be remotely connected to the wireless charging module 190 to control its operation for a number of embodiments. The control module of the wireless charging module 190 are located among other controls or knobs on the dashboard of the mobile vehicle. The control module electronically communicates to the wireless charging module 190 for user to manage operation of the wireless charging module 190. Some other simple embodiments can adaptably connect the wireless charging module to a cigarette power plug 160 that inserting the power plug 160 into the cigarette lighter receptacle directly draws the needed electrical power from the battery of the vehicle to power up the wireless charging module 190. A power cable 161 preferably runs from the power plug 160 to a pin connector 162, which electrically joins to the wireless charging module 190. The power cable 161 comprises a cable sheath 163 enclosing multiple electrical wires 164. A separate control module for the wireless charging module 190 may not be required as the user can simply dissociates the power plug 160 from the cigarette lighter receptacle to power down the wireless charging module 190. Representative drawing of one embodiment of the cigarette power plug 160 is illustrated in Figure 5.

Furthermore, one or more sensors can be installed to detect or determine presence of the compatible battery module of the electronic device in the storage space 185 according to more embodiments of the present disclosure. These sensors are configured to turn on the wireless charging module 190 once the presence of the compatible wireless chargeable battery module is
5 detected or determined. The present disclosure also comprises one or more visual indicator such as LED light electrically connecting to the wireless charging module 190 to show charging status. It is important to note that the wirelessly chargeable electronic device is capable to communicate or at least relay a feedback to the wireless charging module 190 about the battery charging status. Based upon the feedback provided, the LED subsequently beams lights of various color
10 highlighting charging status of the electronic device.

It is to be understood that the present invention may be embodied in other specific forms and is not limited to the sole embodiment described above. However modification and equivalents of the disclosed concepts such as those which readily occur to one skilled in the art are intended to
15 be included within the scope of the claims which are appended thereto.

Claims

1. A seat assembly 100 of vehicle comprising
 - 5 a seat portion 110 including a seat top surface 111, seat lateral side surfaces 112 joining to a seat front surface 113 and a seat back surface 114;
a backrest portion 120 vertically erecting from the seat portion 110 around the seat back surface 121, the backrest portion 120 having a backrest front surface 121, a backrest rear surface 122, a lateral outboard surface 123 and a lateral inboard surface 124;
 - 10 a storage pocket 180 formed on at least one of the seat front surface 113, the backrest rear surface 122, and the lateral inboard surface 124 enclosing a storage space 185 therein accessible through a top opening 186 of the storage pocket 180;
a wireless charging module 190 embedded to the seat assembly 100 at a position substantially corresponding to the storage pocket 180;
 - 15 wherein the wireless charging module 190 is configured for wireless charging of a compatible battery module of an electronic device kept within the storage space 185.
2. The seat assembly 100 of claim 1, wherein the interior surface of the storage pocket 180 are overlaid or coated with fire retardant materials.
- 20 3. The seat assembly 100 of claim 1, wherein the wireless charging is performed by way of inductive charging through at least two different inductive coils 197.
4. The seat assembly 100 of claim 3, wherein the at least two induction coils 197 are arranged on
25 a planar surface of the wireless charging module 190 in a partial overlapping fashion.
5. The seat assembly 100 of claim 1, wherein the storage pocket 180 is partly fabricated with a plurality of apertures or meshes for dissipating heat away from the storage space 185.

6. The seat assembly of claim 1, wherein the storage pocket 180 has a bottom edge and a pair of side edges fixed to the at least one of the seat front surface 113, the backrest rear surface 122, and the lateral inboard surface 124 leaving a separable top edge to create the top opening 186 for accessibility of the storage space 185.

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7. The seat assembly 100 of claim 6, wherein the top edge forms an oblique angle of 5 to 40 degree in relation to the horizontal axis.

8. The seat assembly 100 of claim 7, wherein the top edge with oblique angle is configured to allow part of the electronic device outstretched or extending beyond the top edge.

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9. The seat assembly 100 of claim 1, further comprising a strip having an elongate body, a fixed end secured inside the storage pocket 180 around the top opening 186 and a free end exposed on exterior of the storage pocket 180 such that the elongate body is capable of looping around the electronic device lengthwise upon slidably inserting the electronic device into the storage pocket 180, and dragging the free end away from the storage pocket 180 pulls the elongate body out from the storage pocket 180 pushing along the looped electronic device out from the storage space 185.

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10. The seat assembly 100 of claim 1, further comprising a control module electronically connecting to the wireless charging module 190 for user to manage operation of the wireless charging module 190.

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11. The seat assembly 100 of claim 1, further comprising a patch pocket formed on the backrest rear surface 122 by overlaying a fabric patch from one lateral edge to another lateral edge of rear surface 122 of the backrest portion 120 that the patch pocket is accessible through an open top located at a top edge of the patch pocket, the storage pocket 180 being positioned on the backrest rear surface 122 inside the patch pocket with the top edge of the storage pocket 180 aligned with, adjacent to or almost aligned with top edge of the patch pocket.

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