

METHOD FOR ORGANIZING ONE OR MORE LAYERS IN A WEARABLE

FIELD OF THE INVENTION

[0001] The present invention relates generally to smart electronic devices and transmission of data to such devices and more particularly to a method for organizing one or more layers in a wearable.

BACKGROUND OF THE INVENTION

[0002] Smart devices are electronic devices which may be worn by the user in close to and/or on the surface of the skin, which detect, analyze, and transmit data relating to activity, movement and vital signs and sleep. Example smart electronic devices includes smart wearable devices, smart watches. Smart wearable devices including activity trackers which communicates in IoT environment, wherein these smart wearable devices comprise one or more micro controllers, firmware, software, sensors, communication modules to enable exchange of the data with the mobile device.

[0003] The smart watch is a wearable computer in the form of a watch and modern smartwatch provides a touchscreen display interface for the user to operate and get the information, as similar to the smart wearable devices. The smart watch also associated mobile application which provides the access for managing the data. Data is sent to the smart wearable devices or a smart watch from the connected mobile device. The data includes but not limited to, Bluetooth calling, call/text notifications, music playback, navigation instructions, customized watch faces, alarm set up etc.

[0004] The smart wearable device or smart watch which operates in IoT environment are configured with BLE or BL modules and operate in those networking standards, where, the transmission and reception data rate from and to the subject devices are limited, in other words, BLE and BL does not support higher data transmissions, such as video calling. Even in BLE and BL transmission, more irrelevant data being transmitted to the smart wearable device, which in turn increases the frequency at which the data to be transmitted to the smart wearable device, from the mobile device and thus increases the energy consumption during the transmission and reception at the smart wearable device. The conventional methods operate at same fashion, where more energy is consumed during the process of receiving plurality of data from the mobile device. Hence, there is a need and requirement to suitably project the data on the display of smart wearable device or a smart watch. The following paragraphs provide a

novel method to project the data on the display of the smart wearable device and smart watch by means of organizing one or more layers of data in the wearable device.

SUMMARY OF THE INVENTION

[0005] In one aspect of the present invention, a method of slicing, dividing and splitting information into static and dynamic data, the method comprising, receiving event information at the mobile device wherein, the event information is provided by the application server, based on the selection provided by the user. Segregating the subject event information into static and dynamic data at the mobile device wherein, the segregation of data is based on dynamicity of data and rate of change or variation and degree of variation in data and frequency at which a new data may be available. Identifying at least one of static and dynamic data from the event information at the mobile device wherein subject static and dynamic data are shared with a smart wearable device. Creating at least one or more of static and dynamic data layers to display at least one or more data, by means of layer, to a user at the smart wearable device wherein, the number of dynamic data layer depends on the number of dynamic data identified. Identifying and comparing each new event activity data received from the application server, at the mobile device, for existing data, and subject dynamic and static layer data is updated with a new data when new data value is identified. Creating, a stack of dynamic layers of data over identified static layer data, at the smart wearable device based on the data received from the mobile device.

BRIEF DESCRIPTION OF DRAWINGS

[0006] FIG. 1 is an example system 100 in an embodiment of the present invention.

[0007] FIG. 2 is a flowchart 200 illustrating prioritization of user preferences in an embodiment of the present invention.

[0008] FIG. 3 is a flowchart 300 illustrating a method of monitoring an event activity in an embodiment of the present invention.

[0009] FIG. 4 is a flowchart 400 illustrating a method of slicing information into static and dynamic based on the dynamicity of received data.

DETAILED DESCRIPTION

[0010] FIG. 1 is an example system 100 in an embodiment of the present invention. The system 100 is shown comprising, a smart wearable device 110, a mobile device 120, a first network 130, an application server 140, a database 150, a second network 160, an external server 170 and an external database 180. The smart wearable device 110 is a wearable configured with plurality of sensors which monitor user activity and records data relating to activity, heart rate, sleep etc. The smart wearable device 110 is connected and paired with the at least one mobile

device 120, to share the sensor data. A mobile application is configured in the mobile device 120 to interact and communicate with the smart wearable device 110. The mobile device 120 is connected with the application server 140 through the first network 130. The first network 130 may provide a short distance and long-distance communication channel to establish one-to-one, one-to-many and many-to-one connection among the mobile devices. The application server 140 is capable of receiving plurality of sensor data from the user's smart wearable device 110 through the mobile device 120 and processes the data and store them in the database 150. On the other hand, the application server 140 also manages and handles one or more event related information to specifically notify and which are important to the user. The event relates to sports, stock market, news, etc, which involves continuous updating of data in the application server 130 or an external server 160. A database 150 is connected with the application server 140 which stores user data, activity data, all sensor data, event data, event preferences and interests made by the user etc. The application server 130 communicates with one or more external servers 170 through the second network 160 to obtain original event data for example a sports server, or a stock exchange server. In an embodiment, the application server 140 is connected with at least one external server 170 (a third-party server) to receive such event data. Further, the external server 170 is connected with an external database 180 which stores all data related to the particular event.

[0011] In an aspect of the present invention, the smart wearable device 110 (for example, a smart watch) is configured with one or more static and virtual layers. These static and virtual layers are organized one above the other in the smart wearable device based on the need of the user or system preference (data required to be shown on the device). These layers are basically established based on type, quantity, frequency of data received from the mobile device 120. In other words, for any event and its data, some data may be static in nature and other data may be dynamic in nature. The static data are converted into one or more static layers, which may be placed at the bottom of the layer data and dynamic data are converted to one or more dynamic layers and occupy the top of the layer data. The static layer may involve very minimal change in data, and dynamicity, whereas, the dynamic layer may involve frequent change and more dynamicity in data.

[0012] In an embodiment, the smart watch having at least one layer and is capable of adding one or more additional layers based on the necessity, and dynamicity in order to cover plurality of data on the smart watch. These additional layers are automatically allocated and defined and selected either by the smart watch or the connected mobile device. Further, these additional layers are removed when less information to be shown on the display of the smart wearable

device. The firmware of the smart watch is effective, advanced and capable of handling and dividing huge data into multiple static and dynamic layers of data. The selection and insertion of these layers mainly depends on the depth of data (information which is sorted in different level of data).

[0013] The notifications on smart watch may happen through app specific mechanism where the mobile device is capable of sending the data to the smart watch. And, the original data from the external server is pulled to application server (pull mechanism) in a real time or periodically configured time or preconfigured intervals. Such information relating to event activity data is shown on the smart watch based on the need, dynamicity and frequency of change in event activity data.

[0014] In an aspect of the invention, a method of slicing, dividing and splitting information into static and dynamic, based on dynamicity of information is suggested. A static or dynamic creation of layers of information is also suggested on the smartwatch to overcome handling of huge amount of data and such creation of layer may depend on dynamicity and frequency at which such data are being updated or changed. In an embodiment, a virtual or logical creation of layers of information is further suggested.

[0015] FIG. 2 is a flowchart 200 illustrating prioritization of user preferences in an embodiment of the present invention. As shown there, in step 210, the mobile device through the mobile application may receive and collect one or more user's event preferences relating to notifications, triggering actions etc for the one or more events. The events are relating to sports, news, stock market or any event activity for which notifications may be set. In step 220, the mobile application of mobile device is capable of categorizing and prioritizing the user preferences. For example, sports event will be first priority and news shall be second priority and so on. In other words, if the user needs prioritization in sports, which may also be achieved, such as cricket sport as first priority, football sport as second priority and so on. In step 230, the mobile application of mobile device may locally store the prioritized list of preferences of the user, and based on the said preferences, the information from application server is fetched by the mobile application. And, also, the smart watch and its firmware is tuned and capable of showing such data on the display screen.

[0016] FIG. 3 is a flowchart 300 illustrating a method of monitoring an event activity in an embodiment of the present invention. In step 310, the application server may monitor the event and event data, which is being provided organized by the Sport association and its external server. In step 320, the application server may receive event details, updates in real time, by means of pull mechanism. In step 330, the application server (which stores the user's

preferences) analyzes and categorize the event details and updates and send them to the user's mobile device. The mobile application is also capable of handling such event details, updates and notifications. In step 340, the application server checks whether at least one or more users prefer the subject event match, and to know the traffic of user who are preferring or watching the event. If user prefers, then the control is transferred to step 350, otherwise, the control is transferred to step 320. The user preference is monitored by way of clicks in the mobile application (mobile device) or smart watch (selection option for such update). In an embodiment, the smart watch alone receives the notifications and notifications may be tailored to a specific make of smart watch. In step 350, the mobile application of mobile device trigger one or more notifications to the smart watch based on the user's preference.

[0017] FIG. 4 is a flowchart 400 illustrating a method of slicing information into static and dynamic based on the dynamicity of received data. In step 410, the mobile application of mobile device receives event information. The event information may consist of static and dynamic data. The event information may include but not limited to, event (for example: sport), event location, event participants, event actions, event activities. For example, the event is a cricket sport then following may be event information, team A, team B, scores, batsman A, batsman B, striker, non-Stricker, captain and vice-captain details, bowler, over number, ball count (over data, ball by ball data) etc. For example, in a over, over number is static data and ball count and score is dynamic data. The over number will not change till the end of the over and hence becomes static till end of over, but ball count and score may be dynamic because, ball count is incremented for every ball is being bowled and score is dynamic when run is scored otherwise, the score becomes static.

[0018] In step 420, the mobile application of mobile device through a novel segregation algorithm may segregate such event information into static and dynamic data. In step 430, the mobile application may identify at least one static and dynamic data. The mobile application may share this information with the connected smart watch. The smart watch is device which shows the real time notifications to the user. In step 440, the smart watch may create at least one static and dynamic data layer to show only those data to the user. In step 450, the mobile application checks the data for dynamicity when plurality of data is available. If dynamic data is available, the mobile application transfers the details to smart watch and then the control is transferred to step 460, otherwise the control is transferred to step 430. In step 460, the smart watch creates stack of dynamic layers of data over identified static layer based on the information received from the mobile device. The hardware and firmware of the smart watch is capable of handling, creating and changing such real time data over dynamicity

[0019] For different sports there will be different information hierarchy. The information hierarchy should be developed with the segregation algorithm to identify and separate layers of information in any sport. The mobile device and smart watch are connected over a BLE connection link where only minimal information may be transmitted to the smartwatch at any instance, since the data bandwidth is very low and all information from mobile device cannot be pushed to the smart watch at a single instance, hence subject segregation of data, and creating logical layers of based on the dynamicity of data is preferred.

[0020] The information (static and dynamic) may be put as different layers or layers of information and the application monitor dynamic changing of data and application may only send that layer of information to the smart watch firmware, where the information is changing.

[0021] For example, in cricket, if it is a maiden over, the application may send only over number data, since there are no runs scored in the maiden over. In another example, If the batsman hits six, then application may send every ball data, batsman score, over no, since it is a new insertion in data which is particular for that over.

[0022] Every sport may have hierarchy of information and hierarchy is formed based on how much dynamically information is being changed, with respect to the static information.

[0023] In an embodiment, depending on the sport, the mobile application may figure out which layer has changed and may push only that layer of information, for example, Sports specific layering. The Database and layers of information should be designed once for that sport.

[0024] In another embodiment, Application is configured and user's choice is taken, for example, if user says sports as tennis and user need only notification data of player Sharapova, then the application is particular about the tennis game played by Sharapova. User may only get those notifications relating to Sharapova's tennis match.

[0025] In an embodiment, the intelligence/algorithm of slicing information is stored in the server and Application. The mobile application through an API may call and communicate with server and receive information.

[0026] While various embodiments of the present disclosure have been described above, it should be understood that they have been presented by way of example only, and not limitation. Thus, the breadth and scope of the present disclosure should not be limited by any of the above-discussed embodiments but should be defined only in accordance with the following claims and their equivalents.

Claims

I/ We claim,

1. A method of slicing information into static and dynamic data, the method comprising:
 - receiving, at the mobile device, event information, wherein, the event information is provided by the application server, based on the selection provided by the user;
 - segregating, at the mobile device, subject event information into static and dynamic data, wherein, the segregation of data is based on dynamicity of data and rate of change in data and frequency;
 - identifying, at the mobile device, at least one of static and dynamic data from the event information, wherein subject static and dynamic data are shared with a smart wearable device;
 - creating, at the smart wearable device, at least one or more of static and dynamic data layers to display at least one or more data, by means of layer, to a user, wherein, the number of dynamic data layer depends on the number of dynamic data identified;
 - identifying and comparing, by the mobile device, each new event activity data received from the application server, for existing data, and subject dynamic and static layer data is updated with a new data when new data value is identified; and
 - creating, at the smart wearable device, a stack of dynamic layers of data over identified static layer data based on the data received from the mobile device.
2. The method of claim 1, wherein, the event information is at least one of, event name, event location, event participants details, event activities, event milestones, score data.
3. The method of claim 1, further comprising:
 - notifying the event information to the user by means of trigger, buzz, momentarily highlighting display with at least one color, when at least one layer of data is updated due to new value, on the smart wearable device.
4. A method of monitoring an event activity, the method comprising:
 - managing, at the application server, at least one of user selected event and its event data, wherein, the event data is provided by an external server;
 - receiving, at the application server, event data, one or more event updates in real time, by means of pull mechanism;
 - analyzing and categorizing, at the application server, the one or more event data, and event updates, based on dynamicity and frequency of data reception;

identifying, at the application server, the at least one or more users prefer the subject event, and in order to detect the traffic of data;

sending, by the application server, the one or more event data and event updates to the mobile device, wherein, the event data is received by the mobile device, based on the user's preference; and

forwarding, by the mobile device, one or more event data values and notifications only when change of event data value is identified, wherein, the smart wearable device changes only those event data in at least one of a static or a dynamic layer.

5. A method of prioritizing user preferences, the method comprising:

listing, at the mobile device, a plurality of events, wherein event list is shown with at least one of, sport name, event name, event duration;

receiving and collecting, at the mobile device, one or more user's event preferences;

categorizing and prioritizing, at the mobile device, the event based on the user preferences; and

storing, at the mobile device, a prioritized list of events and preferences selected by the user.

6. The method of claim 5, the method comprising:

listing, at the mobile device, a plurality of events, wherein event list is shown with at least one of, sport name, event name, event duration;

7. A system for triggering a notification to a user, the system comprising:

a smart wearable device capable of receiving sensor data from plurality of sensors configured therein, creating one or more data layers based on the dynamicity of data and frequency, receiving one or more notifications from a mobile device, triggering at least one notification to the user by means of trigger, buzz, and displaying at least one notification to the user;

a first network capable of connecting the smart wearable device with a mobile device, wherein, the first network is a BL or BLE connection;

a mobile device capable of receiving and displaying list of events and event preferences to the user, wherein, the user performs a selection from the list and provide at least one preference manually relating to the subject selected event;

an application server capable of receiving real-time event activity data from plurality of events and identifies user's relevance for at least one event, segregating

the data based on the dynamicity of data and frequency, wherein, the application server provides real-time activity data to the mobile device, only when the user event preference matches with at least one event; and

a database capable of storing user data, activity data, all sensor data, event data, event preferences, a list of interested sport and preferences relating to the list of sports and real-time event activity data.

8. The system of claim 7, further comprising:

an external server capable of processing and organizing original event occurrence data when the event is ongoing, wherein the application server receives the event occurrence data from the external server;

a second network capable of connecting the application server with the external server and vice-versa, wherein, the second network supports both short and long-distance communications and higher bandwidth; and

an external database stores all data relating to the subject event and shares subject activity data relating event occurrence to the external server, wherein, the external database is connected with the external server.