INTERNET OF THINGS SHARED ERGONOMIC DATA

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ABSTRACT

Techniques are described herein for sharing Internet of Things (IoT) ergonomic data. This enables, for example, a rental car to match the renter’s preferred speaker levels, the temperature of a hotel room or office car to be set to the appropriate temperature, or even elevator music customized for the rider. The techniques described herein seamlessly enable these actions.

DETAILED DESCRIPTION

The Internet of Things (IoT) allows things to be identified to a human owner in many cases. A key fob, for instance, can identify a car owner to a car.

In this case, a car can “learn” many preferences of the owner. For example, the owner sets the seat, changes the temperature, selects radio/song settings, and so on. This information may be stored for the car.

As described herein, objects may share information between them for this owner. All the objects may store or retrieve information about the owner from a central database for the owner. This way a new object (e.g., a rental car) may have the seat adjusted per the renter’s needs prior to the renter getting into the car for the first time.

This can also apply between device types. A smart speaker can share music preferences with the car (for instance), but other, less obvious relationships may also exist. The normal volume of the smart speaker might also be applied in the car (and rental car).

The data may be normalized to be more useful. Knowing a person’s height and weight (instead of specific seat settings) allows each device to use this information per its own specific needs. A theater seat, for instance, may use the data to adjust internal air cushions to the person’s preferences automatically with this data, whereas knowing values of the car seat settings (“55 of 100”) would be meaningless to the theater seat.

This data may be highly guarded and authenticated to the different devices for the user.
The central database may include ergonomic and personal choice data that is stored in a generic format (e.g., Extensible Markup Language (XML)) and in objective units (e.g., 35 degrees Centigrade, not “middle range of temperature dial in car”). This data can be read by the device at any time as long as it authenticates for this user. Several authentication mechanisms may exist (e.g., permanent key arrangement for a privately owned car, temporary authentication from a web site based on an active rental car agreement, etc.) based on the particular device and use scenarios.

These techniques provide for the sharing of this information in a natural way between devices. If the data already exists in the database, it is used. If it does not exist, and the device is able to collect it, and then the device can provide it for other devices to share. The use of a “central database” also allows multiple devices to interact without detailed knowledge of each other. A home thermostat need not have any details about a car, for instance, to share temperature preferences.

In one example, this information may be stored as part of the telephone related information in the same database as call forwarding and so on. In a more general instance, this could be any centralized database.

Devices may use this data if the data has been previously stored in the database, and otherwise may add the data. For example, a smart home speaker system may check the database and discover that no volume level is set. If the user sets the speaker system to volume level 4 (e.g., 40 dB), the speaker system provides this value to the central database. The user’s car may then check the database, and discover that the value is set in the database. The car may then preset the volume to 40 dB. In one specific example, the car may set the volume to 42 dB to account for road noise.

Techniques described herein enable devices to share data by storing it in standard units (e.g., “38 degrees Centigrade”) as opposed to device specific units (e.g., “temperature setting 23 in the car temperature dial”). This also allows for cross device type information sharing. For example, the home thermostat can share data used by a car, or a hotel room, or the volume of the car stereo can be used to set the volume of a smart home speaker system. This requires each device have access to the database and use previously agreed-upon units.
In one example involving a car seat and an office chair, the central database knows that a person is 5 ft., 11 in. tall, and weighs 200 pounds based on data from the person’s recliner. The car knows that the starting position of the seat should be “60% back” based on the “height of person” data. The person sits down, and finds the “length” of the car seat good, but adjusts the height, and the location of the steering wheel. All of this is stored in the central database. The person later arrives at a mobile touchdown space (e.g., remote office). The office chair and work surface obtain the “height and distance” preferences from the central database, and adjust accordingly.

Figure 1 below illustrates sharing to different devices.

In summary, techniques are described herein for sharing IoT ergonomic data. This enables, for example, a rental car to match the renter’s preferred speaker levels, the temperature of a hotel room or office car to be set to the appropriate temperature, or even elevator music customized for the rider. The techniques described herein seamlessly enable these actions.