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Solar Smart Hat for Augmented Reality Wearables

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ABSTRACT

Some augmented reality (AR) wearables such as glasses include powerful features such as live transcription. However, such features are constrained by the relatively low processing power and limited battery capacity of AR wearables. , necessitated by the small size and limited space availability. AR wearables need to be taken off for charging since there is no convenient way to charge the device during use. This disclosure describes a smart hat, a head-worn accessory that includes a solar panel and battery. The smart hat can be connected to an AR wearable via an interface and can charge the AR wearable. The smart hat may also include a processor and memory that enables the AR wearable to offload processing or storage tasks to the smart hat by performing data transfer via the interface.

KEYWORDS

- Augmented reality
- Wearable device
- AR glasses
- Smart hat
- Charging hat
- Solar hat
- Headgear
- Headwear

BACKGROUND

Augmented reality (AR) wearables, e.g., glasses, are gaining popularity. Some AR devices include powerful features such as live transcription. However, such features are constrained by the relatively low processing power and limited battery capacity of AR wearables, necessitated by the small size and limited space availability. AR wearables need to be taken off for charging since there is no convenient way to charge the device during use.

DESCRIPTION

This disclosure proposes a smart hat - a hat or other head-worn accessory - that enables charging AR wearables.

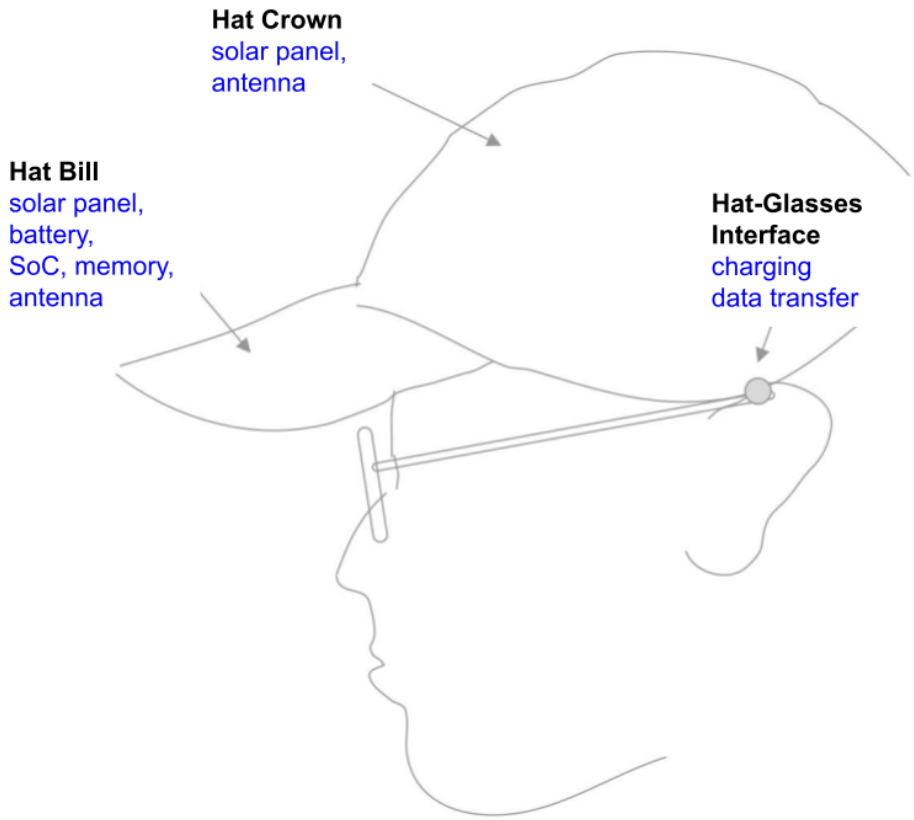

Fig. 1: Smart hat for augmented reality wearables

Fig. 1 illustrates an example scenario of a person wearing augmented reality (AR) glasses and a smart hat. The smart hat includes a hat-glasses interface that enables the smart hat to supply power to and charge the AR glasses as well as enables data transfer between the smart hat and the AR glasses. The smart hat also has a hat crown that includes a solar panel and an antenna. The hat bill can also include a solar panel, a battery, a System-on-Chip (SoC or processor), memory, and antenna.

Having the additional power source of the smart hat can improve the total usable time for the AR glasses. The solar panels in the hat crown and the hat bill can support solar charging when the user is in an area with exposure to sunlight. For example, the user can wear and use AR glasses while outdoors without worrying about draining the battery.

The SoC and memory of the hat can enable offloading processing and/or storage burden from the AR glasses. The physical connection between the hat and the glasses can enable transmission without the use of a wireless interface that may be power consuming. The antennas in the smart hat can enable communication with the AR glasses and/or other devices such as a smartphone, smartwatch, or other device carried by the user.

While Fig. 1 shows a smart hat with multiple features, hats with fewer or more features can be designed. For example, some smart hats may provide charging and an external battery, but may exclude the SoC, memory, and antennas. Any type of hat or other head-worn clothing (e.g., headband, bandanna, headscarf, etc.) can implement one or more of the described features. Also, while the foregoing description refers to AR glasses, any wearable device may utilize the smart hat for charging and/or for auxiliary processor/memory capabilities.

CONCLUSION

This disclosure describes a smart hat, a head-worn accessory that includes a solar panel and battery. The smart hat can be connected to an AR wearable via an interface and can charge the AR wearable. The smart hat may also include a processor and memory that enables the AR wearable to offload processing or storage tasks to the smart hat by performing data transfer via the interface.

REFERENCES

1. "SOLSOL hat" available online at https://solsolhat.com/ accessed Dec 6, 2022.