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(54) **WIRELESS HEALTH MONITOR DEVICE AND SYSTEM WITH COGNITION**

(76) Inventors: **James L. Wolf**, Conifer, CO (US); **Thomas P. Walker**, Morrison, CO (US); **Franz Huber**, Denver, CO (US); **Robert N. Caruso**, Evergreen, CO (US)

Correspondence Address:
KYLE W. ROST
5490 AUTUMN CT.
GREENWOOD VILLAGE, CO 80111

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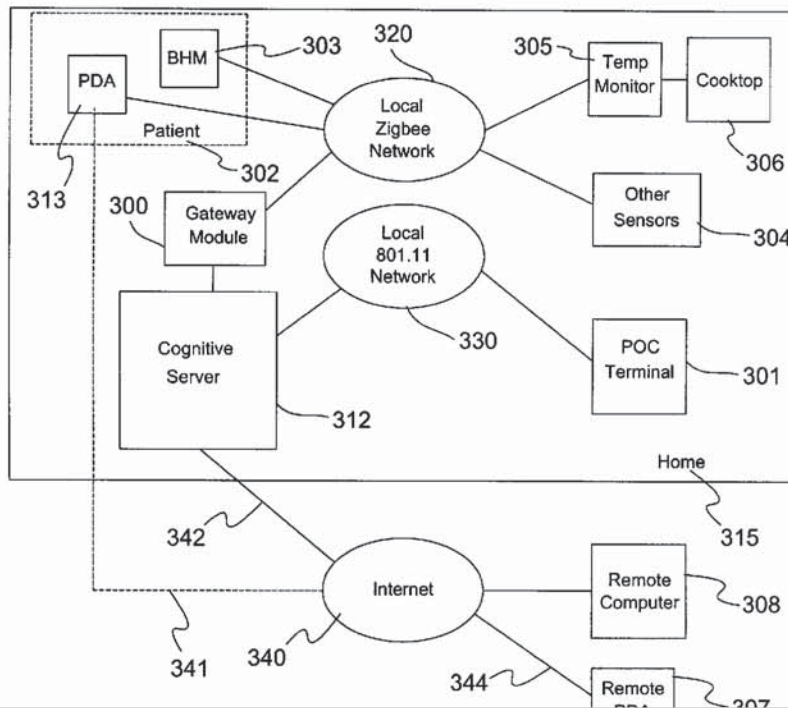
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(57) **ABSTRACT**

A home-based remote care solution provides sensors including a basic health monitor (BHM) that is a measurement and feedback system. The BHM operates with low power inte-

grated communications combined with an in-home, low power mesh network or programmable digital assistant (PDA) with cell phone technology. A cognitive system allows remote monitoring of the location and the basic health of an individual. The BHM measures oxygen saturation (SaO2), temperature of the ear canal, and motion, including detection of a fall and location within a facility. Optionally, the BHM measures CO2, respiration, EKG, EEG, and blood glucose. No intervention is required to determine the status of the individual and to convey this information to care providers. The cognitive system provides feedback and assistance to the individual while learning standard behavior patterns. An integrated audio speaker and microphone enable the BHM to deliver audio alerts, current measurements, and voice prompts. A remote care provider can deliver reminders via the BHM. The device may be worn overnight to allow monitoring and intervention. Through the ability to inquire, the cognitive system is able to qualify events such as loss of unconsciousness or falls. Simple voice commands activate the device to report its measurements and to give alerts to care providers. Alerts from care providers can be in a familiar voice to assist with compliance to medication regimens and disease management instructions. Simple switches allow volume control and manual activation. The device communicates with a series of low-power gateways to an in-home cognitive server and point-of-care (POC) appliance (computer). Along the BHM provides basic feedback and monitoring with limited cognitive capabilities such as low oxygen or fall detection. While connected to the cognitive server, full cognitive capabilities are attained. Full alerting capability requires the cognitive server to be connected through an Internet gateway to the remote care provider.



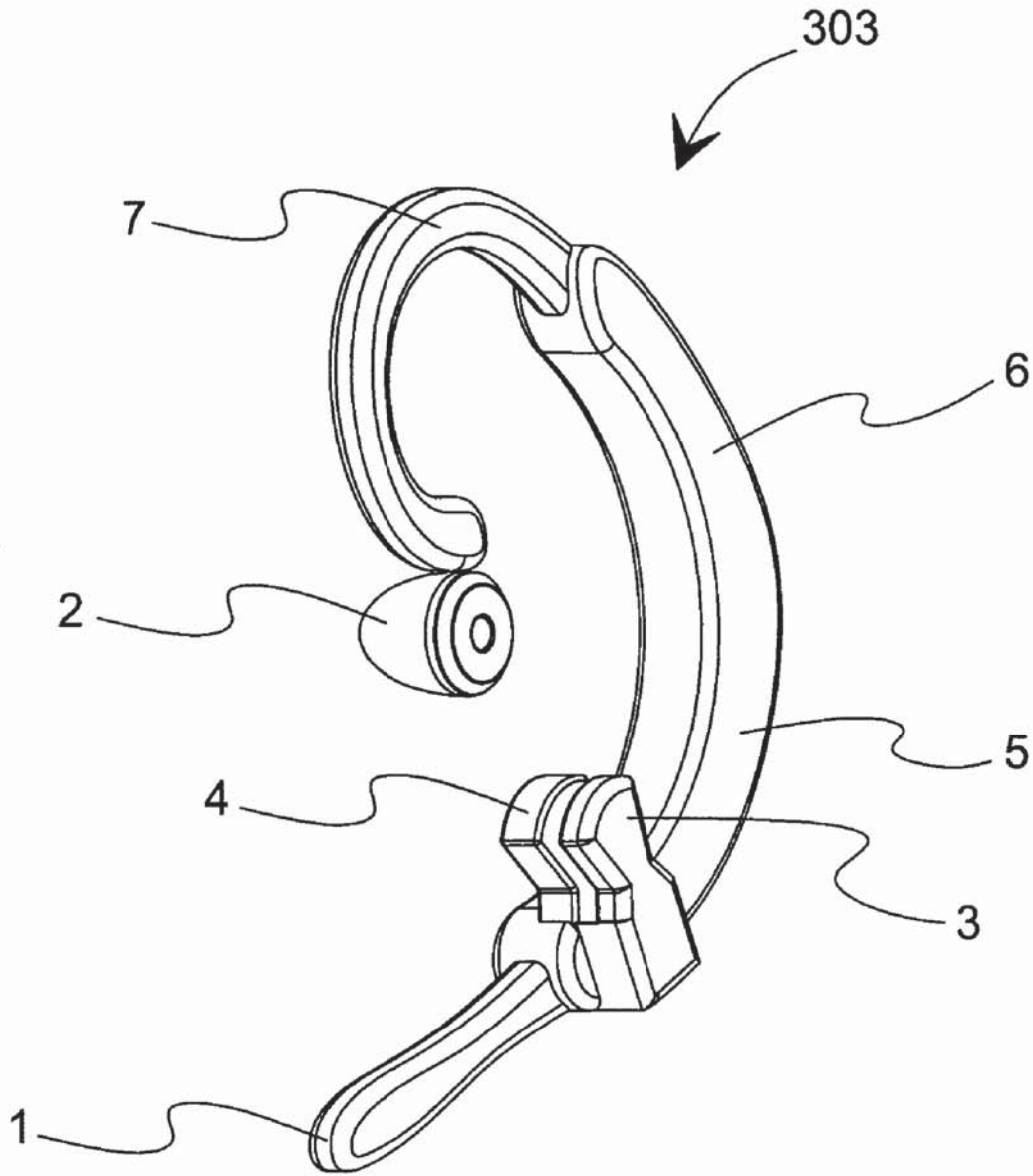


Fig. 1

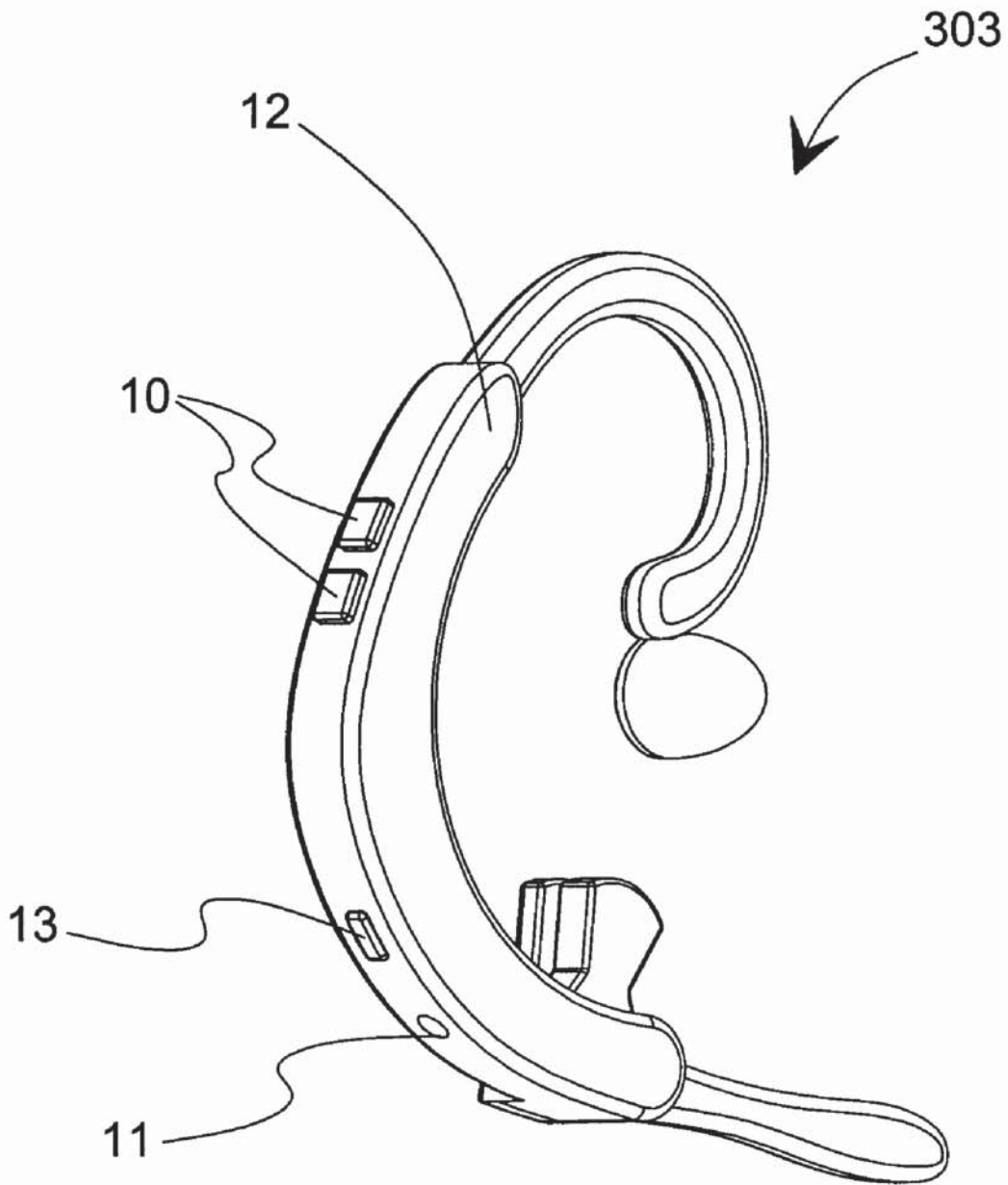


Fig. 2

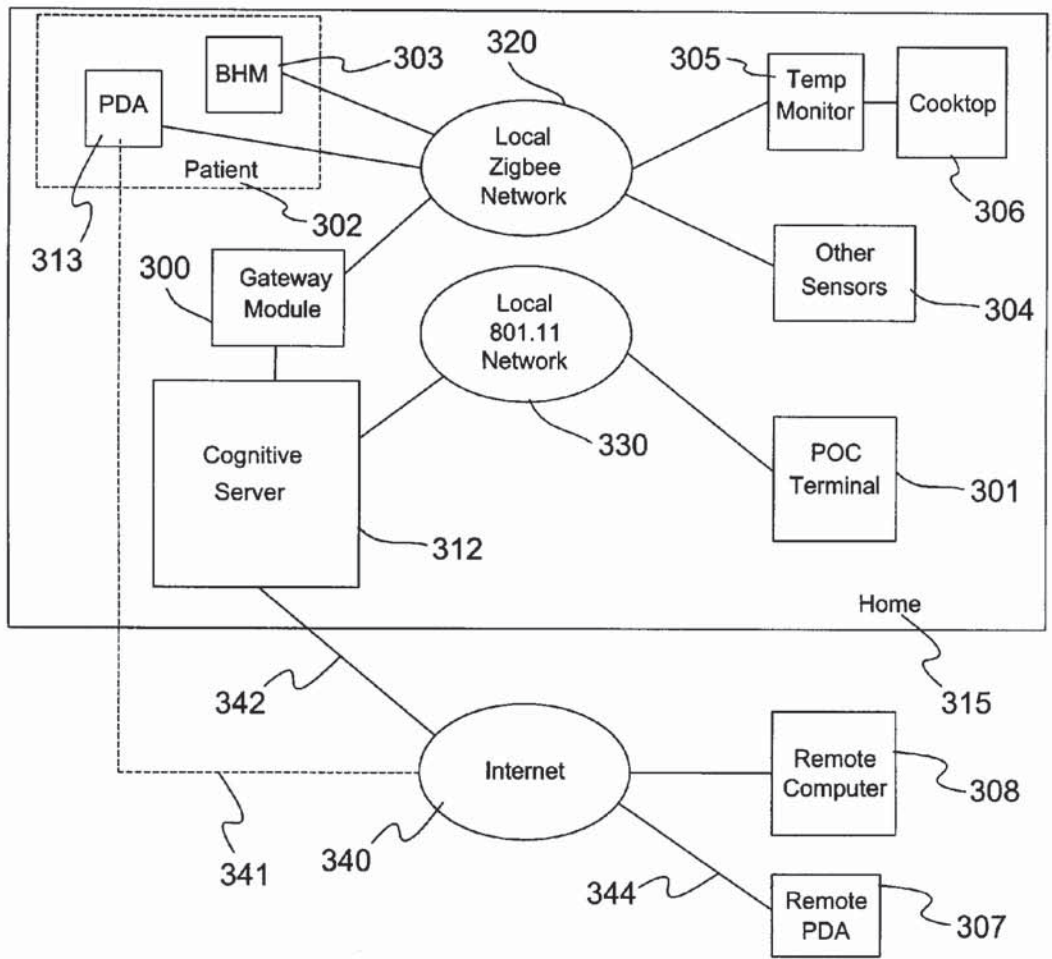


Fig. 3

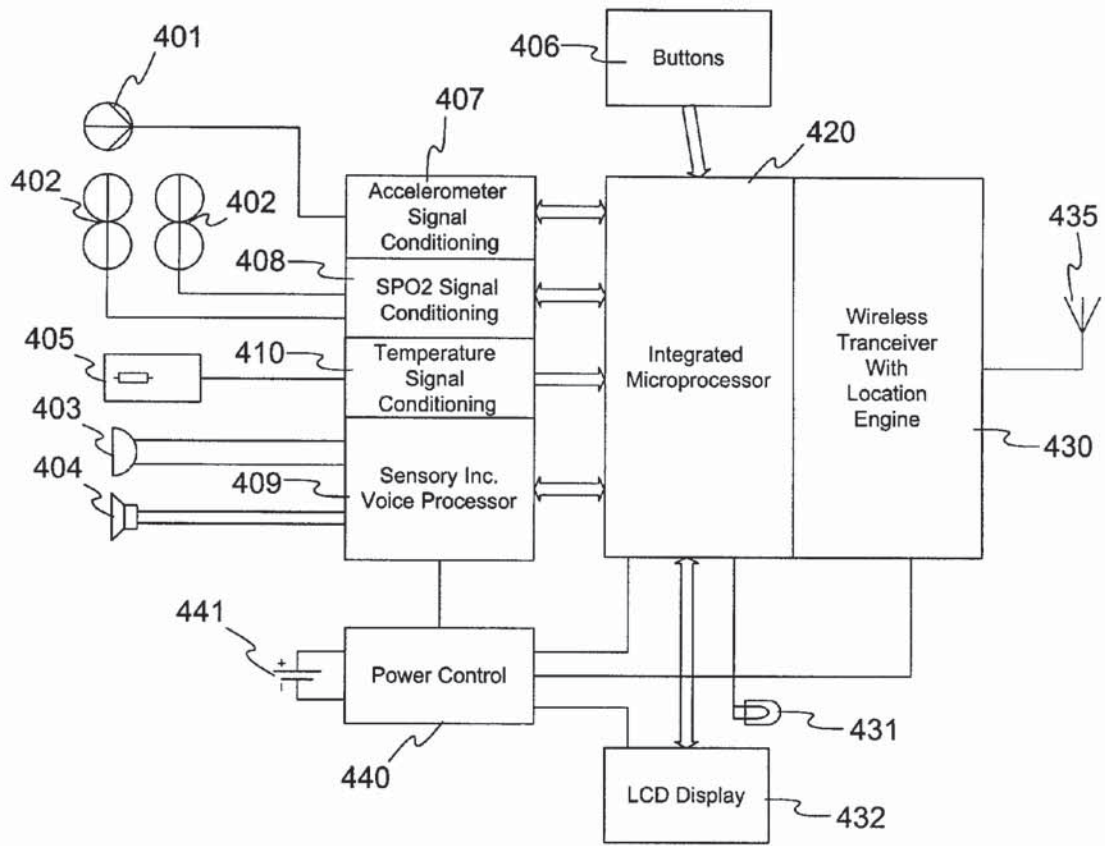


Fig. 4

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