Feeling the mobility gap, Sunu Band to help blind and visually impaired

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(Tech Xplore)—Wearables for the blind to improve their spatial awareness and navigation are always of interest and this month the Sunu Band is drawing keen interest among tech watchers for its capabilities.

Sunu is a technology company. Marco Trujillo, Cuauhtli Padilla and Fernando Albertorio are the founders.

Sunu is producing a smartwatch for the visually impaired, called Sunu Band. Think sonar and vibrations.

Namely, the device "uses a sonar sensor and subtle vibrations" said *MIT Technology Review*.

The band "emits a high-frequency ultrasound wave" that bounces off objects that the wearer encounters. "The band considers the strength of this reflection and produces a vibration that's stronger or weaker depending on how close or far away the object is."

The band is now on special offer for $249.99 through the company's website and regular pricing will move it to $299.

A rechargeable battery provides 4 hours with continuous sonar use.

Dave Power, President, Perkins School for the Blind, said the band "may be the way that we navigate like bats navigate in the night."

Nick Lavars, *New Atlas* explained: "This process of echolocation is the same way bats find their way around, shooting out sound waves and then judging how far away objects are by listening in to the echoes."

Range of ultrasonic proximity is given on the company site as 13 feet; it can navigate objects up to 13 feet (4 m) away. Its haptic feedback supports the person to independently navigate to an impressive degree, as vibrations help the person feel out the environment.

The closer an object—the stronger the reflected sound wave; the harder the vibration.

Albertorio, a Sunu cofounder, is legally blind. Rachel Metz in *MIT Technology Review* wrote about her experience in walking around streets with Albertorio.

"I feel much more confident moving around these spaces where normally, instead of walking faster, I'd be like, 'Uh, where am I going?'" Albertorio said in her article.

Sunu's products were tested and certified, and meet the necessary electrical, radiative emissions and safety requirements for the FCC and CE.

The Sunu Band site, though, provides a detailed list of what the band is not intended for, as safety precautions. For example, the Sunu Band is not to be used for detecting stairways and slippery surfaces. One cannot rely on the Band to cross streets or any intersection where there is vehicular traffic.

They also advise people about the sonar sensor. They note that "Interference make the Sunu Band vibrate continuously and it may become unresponsive." If experiencing this interference, they advise to stop use until in an area free from interference.

Also, they noted, the Sunu Band is not waterproof. "If the device is wet, please allow it to dry before continuing use."

Nonetheless, Rachel Metz in *MIT Technology Review* explored just how useful this device might be.

She wrote about what she observed in talking a walk with Albertorio. "He had no problem avoiding all kinds of things, from big concrete planters to hanging branches ... He showed me how he could use the band to sense doorways by spotting gaps between vibrations that

signified the different sides of the structure."

Metz tried the band herself. She said she was "surprised by how sensitive and responsive it was to pedestrians, pulsing more urgently as they moved toward me and then more softly as they passed."

It is estimated that about 1.3 million people in the U.S. are legally blind, said National Federation of the Blind.

Legal blindness refers to central visual acuity of 20/200 or less in the better eye with the best possible correction, or a visual field of 20 degrees or less, they have stated. As many as 10 million Americans are estimated as blind or visually impaired.

More information: www.sunu.io/