

3D SPATIAL HAPTICS

FEEL THE HAZARD BEFORE YOU SEE IT

Urban traffic is becoming more complex, with busy intersections, limited visibility, and significant speed differences. Especially elderly cyclists who must respond quickly in traffic situations like these are vulnerable and rely more on safety systems. At the same time, most existing warning systems rely on screens or sound, adding extra demand to senses that are already heavily used during cycling.

A new approach: a directional haptic warning system that translates hidden hazards into vibration cues on the body, using a **3D spatial haptic helmet** and **vibrating handles**. It creates an additional sensory layer that helps cyclists feel where danger is coming from.

Rather than overloading the cyclist with more information, this system focuses on delivering only what matters, when it matters. In this way, it acts less like a conventional alarm and more like a subtle "sixth sense" for cycling.

"Not a screen. Not a sound. A feeling!"

B2X READY
FEEDBACK

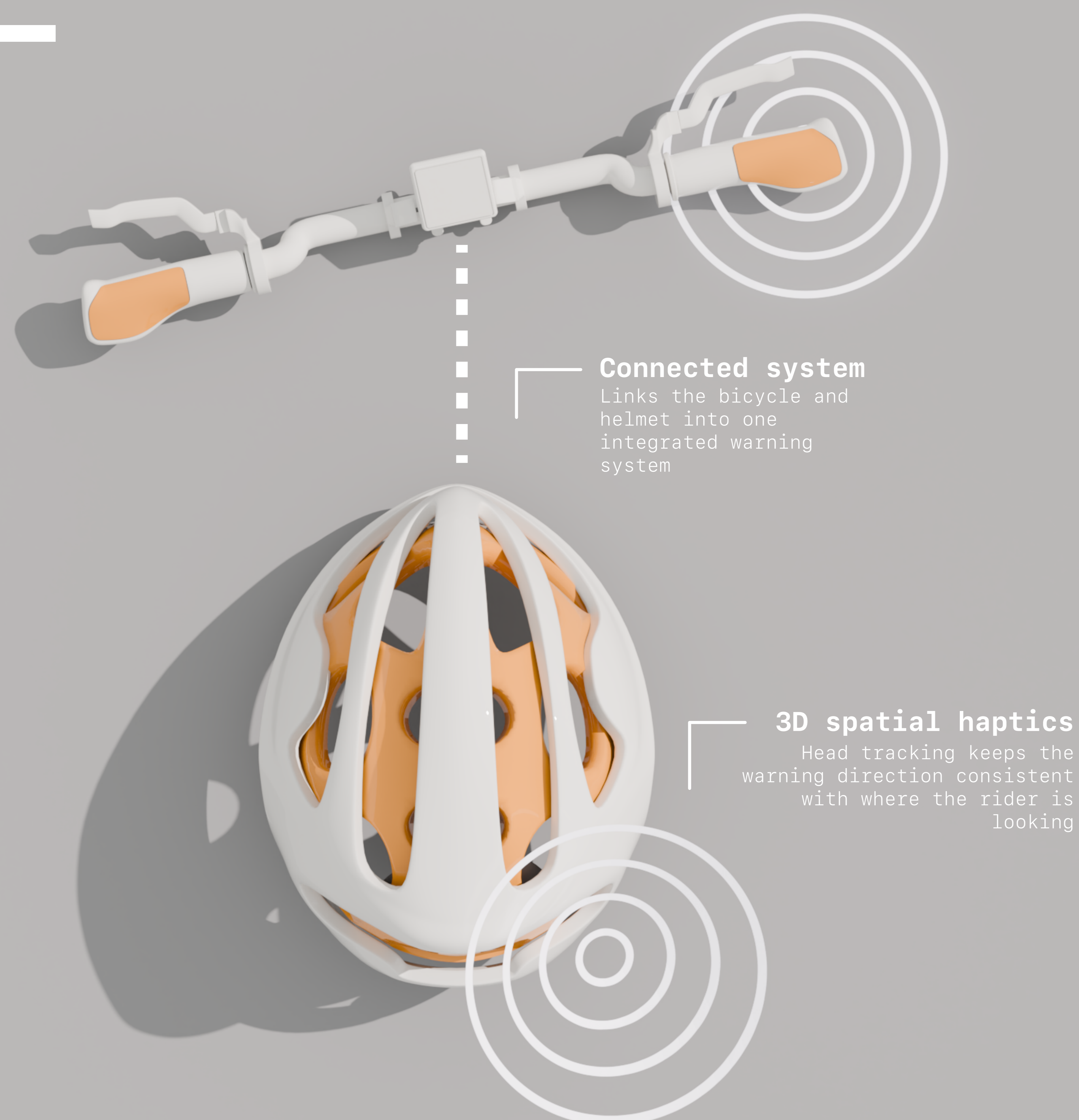


Haptic helmet
Around-the-head vibrations create spatial awareness of hazard direction and movement

B2X-based
Communication provides hazard information that is translated into cyclist warnings

Haptic handles
Provides local vibration cues in the handlebar as an additional warning point during riding

HAPTICS SYSTEM



Connected system
Links the bicycle and helmet into one integrated warning system

3D spatial haptics
Head tracking keeps the warning direction consistent with where the rider is looking

SAFE TESTING

A safe desktop simulation
Evaluates the haptic systems for B2X hazard events



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