

Interface	Input/Output	Type	Description
sensors	Input	Hardware	Sensors to capture ambient sounds ,motions to detect potential hazards like horns or fast-approach
Bluetooth/Wi-Fi Module	Input & Output	Hardware	Communicate with the paired smartphone and receive/send data.
Sensor Analysis software	Input & Output	Software	Analyze data to determine user motion direction and sound .
Smartphone Interfacing App	Input & Output	Software	Communicate between the smartwatch and smartphone, relay alerts, and possibly pause distractions.
User Profile & Preferences	Input & Output	Software	Store and provide customization settings like alert sensitivity, notification preferences, etc.
Haptic Feedback Algorithm	Input & Output	Software	Determine vibration patterns based on the level of threat and user settings.

Interface	Input/Output	Type	Description
History Log	Output	User Interface	Display past alerts with timestamps for user review.
Tutorials & Guides	Output	User Interface	Provide guidance on how to use the watch effectively.
Vibration Patterns	Output	Alert	Different patterns to signify the level of threat, e.g., single vs. repeated vibrations.
Visual Alerts	Output	Alert	Color-coded warnings on the watch display indicating the threat level.
Audible Alerts	Output	Alert	Beeps or voice warnings for hazards, played through earphones or the phone's speakers.
Battery & System Health	Output	Safety Protocol	Check system health and warn users if the battery is low or a malfunction is detected.