Forte Data Glove

Enterprise Edition

Product Overview

The Forte Data Glove is a high-performance AR/VR glove with haptic feedback that can communicate over USB or Bluetooth.

The Enterprise Edition has been designed to help partners quickly roll out glove interaction and training solutions to meet their unique needs across various industries and use cases.

BeBop's robust SDK, documentation and API means that developers can start building and rolling out immersive and interactive applications that take advantage of the full-feature set of the glove.

About BeBop

BeBop Sensors makes smart fabric sensing platforms to help people communicate with technology in innovative ways. We create intuitive, flexible interfaces between humans and machines.

Founded in 2014 by Keith McMillen, a 35-year veteran of the creative tech industry, we're a passionate, diverse team of 25 inventors, engineers and textiles experts changing the way people interact with their technology.

See our Engadget review from CES 2019:

https://youtu.be/xWeqrAw0QRw

I/O Overview:

Sensors

Finger Tracking:
The Forte Data Glove uses Bebop Sensors' patented fabric sensing technology platform for high resolution finger tracking across all fingers and the thumb. Our flexible fabric is less than 1mm thick and can measure bend resolution and accuracy at +/- 1.5 degrees.

IMU:
Integrated into the glove is an intelligent 14-bit IMU that combines a gyroscope, accelerometer and magnetic sensor to provide 9 degrees-of-freedom orientation tracking in real time.

Communication

Bi-Directional Serial and Bluetooth Data Transmission:
The data glove can be opened across platforms as a class-compliant serial device via Bluetooth and USB for bi-directional communication. Our on-board CPU elegantly synthesizes, processes and handles the transmission of all the sensor data from the IMU and fabric sensors, and haptic actuators at 200 frames per second for near-instantaneous response.

Immersion and Feedback

Haptic Feedback:
The glove has 6 custom non-resonant actuators, in the fingertips and palm, that give developers and interaction designers unprecedented control over the tactile response and feedback of the glove. The actuators have a 4+ octave response and can be triggered individually or together at different velocities to convey rich, realistic textures and unique physical sensations

Application Support

SDK and Utilities:
Powering the glove is a robust Unity SDK to help you get the most out of the glove. We're also shipping with time-saving utilities and scripts to simplify calibration, 3D-tracking, rigging, haptic playback and communication with the glove.

Technical Specs:

CPU	ARM Cortex-M4 32-Bit High Performance MCU
Communication	USB 2.0 and Bluetooth and BLE 5 (up to 20 meters)
Tracking	**Finger tracking:** Analogue smart fabric sensors on all fingers, 10 total **Orientation Sensor:** 9-degree IMU (Inertial Measurement Units) module, equipped with 14-bit accelerometer, high performance magnetometer, and advanced 16-bit triaxial gyroscope
Sensor Performance	**Sample rate:** 200 Hz sample rate **Latency:** 150 frames per second data rate, <6 ms **Bend accuracy and repeatability:** +/- 1.5 degrees
Haptics	6 non-resonant audio rate actuators (1 per finger and palm) 4+ Octave frequency response from 100 Hz to 2000 Hz.
Physical Characteristics	**Size:** One size fits most (min-max hand length: 170-200mm; min-max hand width: 80-100mm) **Weight:** 3.65 oz **Color:** Black **Textile Information:** Neoprene, nylon and spandex
Power (wired and wireless)	**USB-powered:** USB-C connector **Battery:** Built-in rechargeable Lithium Polymer Battery **Battery Duration:** 6 - 8 Hours (depending on use) **Charging:** 2 hours, over USB
Application Support	**Platform support:** Android, Windows, Linux, and (limited) Mac Supported Languages: Python, C++, and Java **Development support:** Unity SDK, Unreal SDK, Python SDK, Data Glove API, built-in utilities for calibration, pose and gesture recognition, collision detection, haptic control and bi-directional communication
Documentation	Quickstart guide, full documentation for Unity SDK, API, with demo scene, haptics examples and tutorials.
Demos	The glove ships with five micro-experiences to showcase the glove's unique features.