Functional specifications

Presentation

We are designing an embedded system capable of creating Augmented Reality (A.R.) and Virtual Reality (V.R.) experiences. We use a hand tracking system to immerse the hands in the process. We offer this Augmented Reality interface through a pair of stand-alone glasses.

Needs

Software

Our software needs are first and foremost a firmware capable of exploiting all the capabilities of our components and an operating system to integrate our functionalities and our "HMI".

The most resource-intensive application would be the capture, analysis and rendering of 3D images and objects. Image processing would use the artificial intelligence approach to create information when capturing images.

Material

Our needs in terms of equipment are :

- 3 cameras
- 3 L.E.D. Infrared
- Thermometer
- Barometer
- Accelerometer
- Gyroscope
- GPS (Global Position System)
- Magnetometer
- Step counter
- Brightness sensor
- Proximity sensor
- NFC module (Near-Field Communication)
- 4 microphones
- 2 speakers
- 2 screens

- 2 transparent black LCD screens
- Square Force - Sensitive Sensor
- HRM (Heart Rate Monitor)
- Biometric sensor
- WiFi module
- Module 4G / 5G
- Thunderbolt 3 module (USB Type-C standard)
- Other basic components of a smartphone