

## LUXOTTICA WEARABLES



### I-SEE :

Ready to go platform for data-acquisition



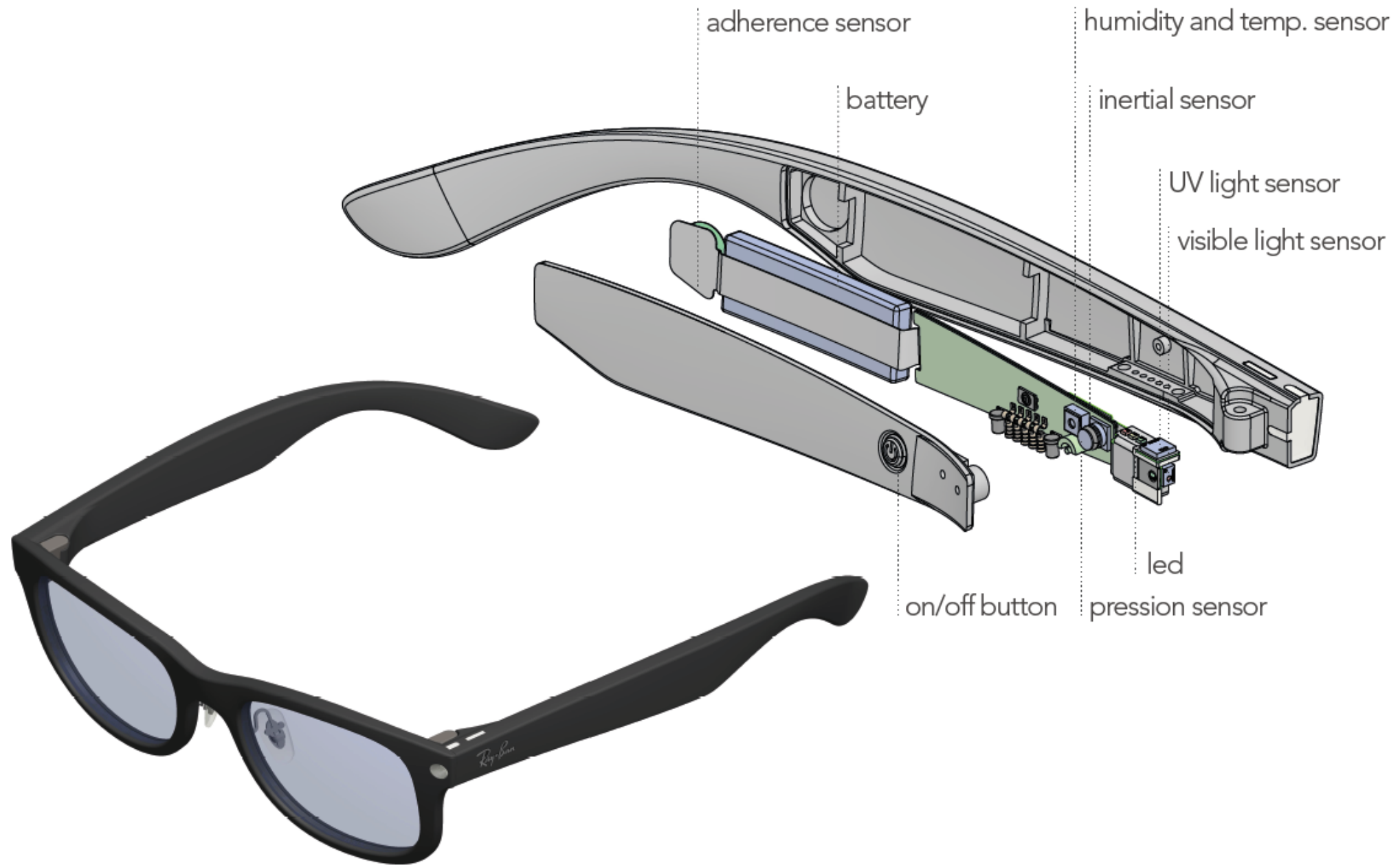
### Wayfarer Research Platform :

Swiss-knife multi-purpose board in a eyewear form factor.



I-S E E

Introduction





**UV light** over exposure monitoring, eye and skin



**Blue light** exposure monitoring



Record **activity** and **health**:  
behaviour reminder, time spent in front of the screen, number of breaks, sit/stand/walking, indoor/outdoor



**Temperature** and **humidity**



**Head posture** monitoring for progressive lenses



I-SEE



HOWTO

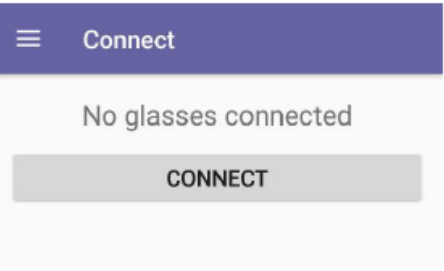
# CONNECTION



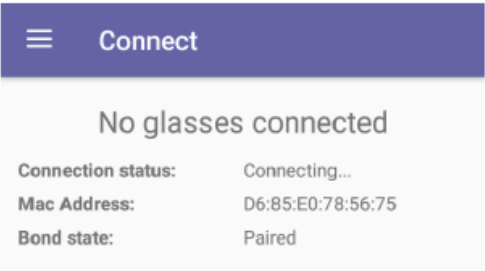
USE I-SEE Data Science APP  
Please use APK to install into  
Cell phone

Sensor State	STOP POLLING
START TIME: 27-11-2018 16:33:16	
CURRENT TIME: 27-11-2018 16:35:31	
0 days, 0 hours, 3 minutes, 15 seconds.	
ACC_X (g): 0.048	
ACC_Y (g): -0.06	
ACC_Z (g): -0.99	
GYRO_X (dps): -0.9	
GYRO_Y (dps): -0.6	
GYRO_Z (dps): 0.5	
MAGN_X (mGs): -22.5	
MAGN_Y (mGs): -369.0	
MAGN_Z (mGs): 168.0	
ROLL (°): 85.5	
PITCH (°): -38.9	
YAW (°): 223.4	
PRESSURE (Pa): 100598.0	
ADHERENCE (on/off): 0	
BLUE_BAD (?): 18.0	
BLUE_GOOD (?): 15.0	
Y (?): 97.0	
X (?): 90.0	
HUMIDITY (%): 52.42	
TEMPERATURE (°C): 26.76	
UV A (W/m²): 0.0635	
UV B (W/m²): 0.001704	

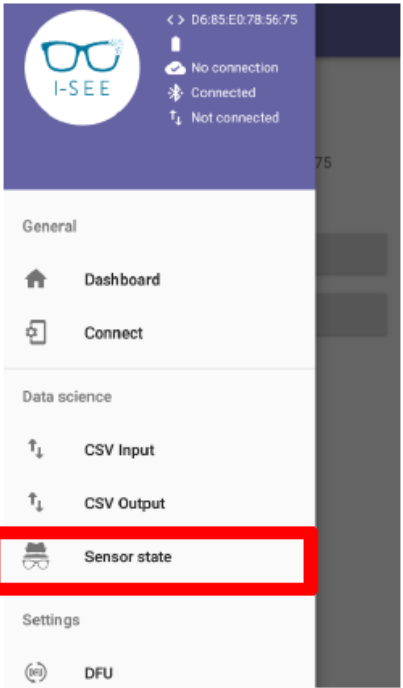
All sensor data can read from sensor state



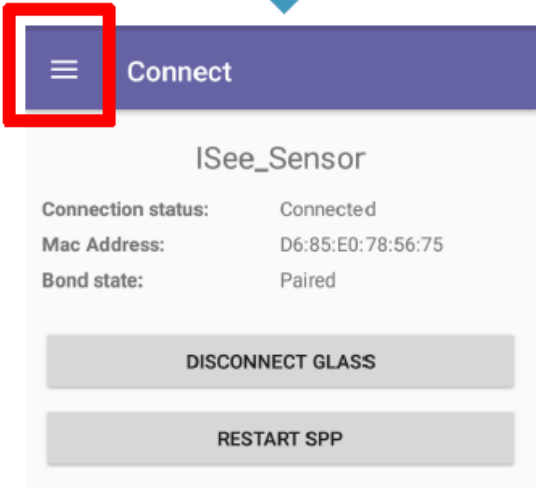
Press connect  
(Make sure power on device  
with blue LED blinking)



Waiting for connection



After connection  
Need to pair with device  
PWD: 123456



Successful connected



# FUNCTIONS



Adherence area



UVA/UVB sensor area

≡

Sensor State

STOP POLLING

START TIME:27-11-2018 16:33:16

CURRENT TIME:27-11-2018 16:36:31

0 days, 0 hours, 3 minutes, 15 seconds.

ACC\_X (g):0.048

ACC\_Y (g):-0.06

ACC\_Z (g):-0.99

Accelerometer

GYRO\_X (dps):-0.9

GYRO\_Y (dps):-0.6

GYRO\_Z (dps):0.5

Gyroscope

MAGN\_X (mGs):-22.5

MAGN\_Y (mGs):-369.0

MAGN\_Z (mGs):168.0

Magnetic sensor

ROLL (°):85.5

PITCH (°):-38.9

YAW (°):223.4

Accelerometer & Gyroscope

PRESSURE (Pa):100598.0

Barometer

ADHERENCE (on/off):0

BLUE\_BAD (?):18.0

BLUE\_GOOD (?):15.0

Y (?):97.0

X (?):90.0

Blue light quality

HUMIDITY (%):52.42

Humidity

TEMPERATURE (°C):26.76

Temperature

UV A (W/m^2):0.0635

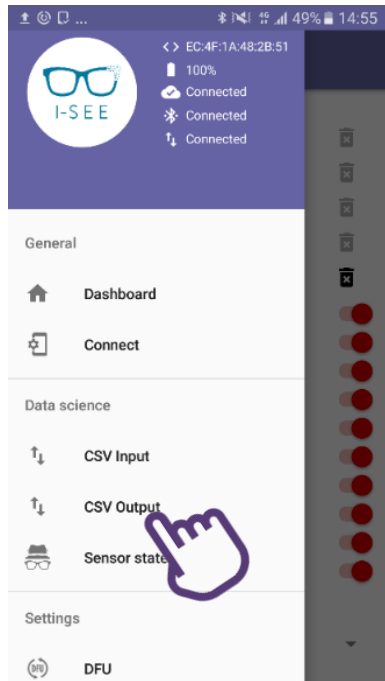
UV B (W/m^2):0.001704

UVA/UVB sensor

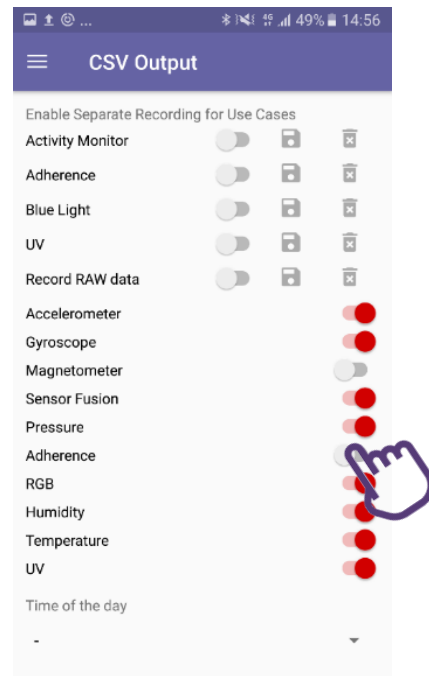


Blue light quality area

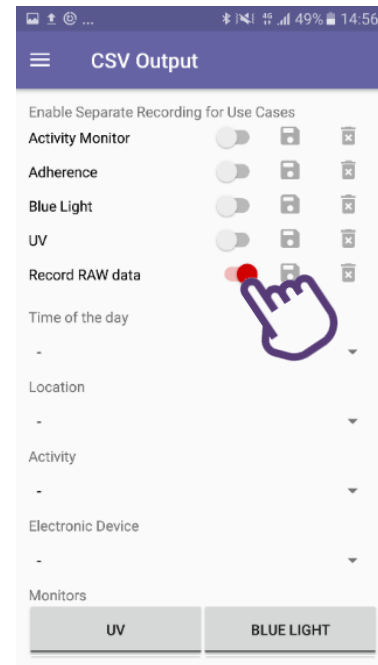
# HOW TO RECORD DATA STREAM



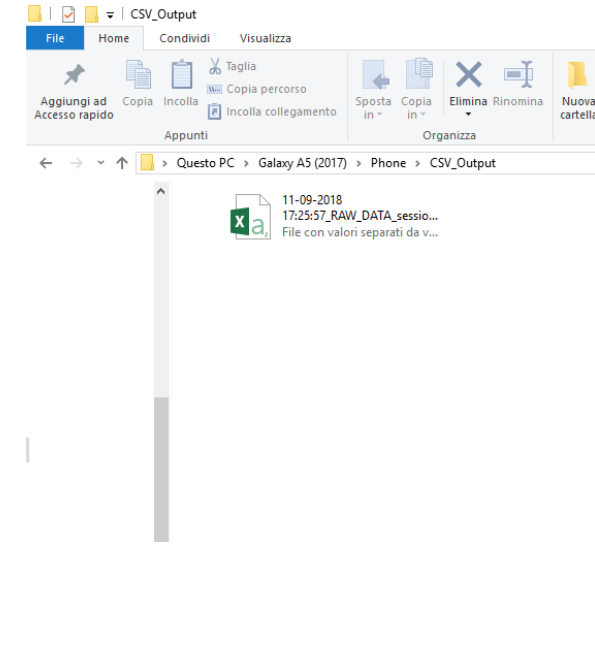
In the menù select 'CSV Output' when a device is connected



Select/unselect the sensor data from the list



Activate 'Record RAW data' to start/stop recording



Find the .csv file in the smartphone> CVS\_Output folder

NOTE: Any «Sensor Fusion» error does not affect data collection.



# LED BEHAVIOUR

## Smartglasses interactions & behaviours

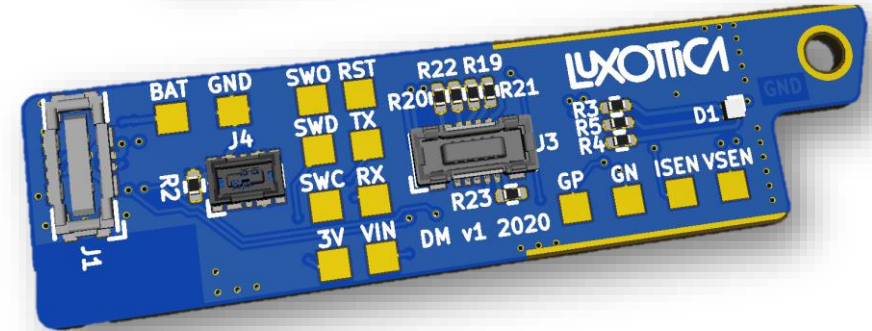
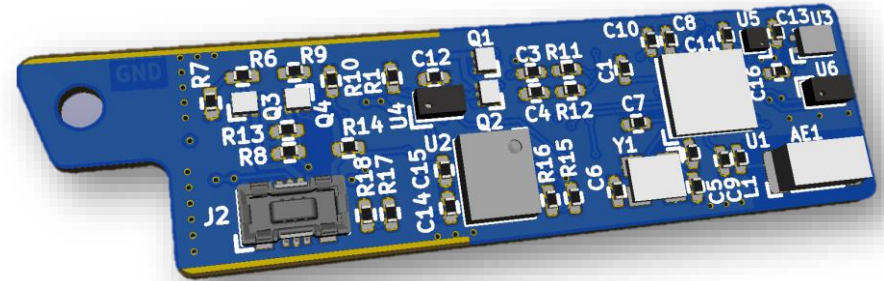
Event	Trigger	Feedback LED OUTSIDE			Feedback LED INSIDE			Expires
		LED COLOR	LED SIGNAL	LED STYLE	LED COLOR	LED SIGNAL	LED STYLE	
Level battery: running low	1 quick press	-	-	-	RED	continuous 3 seconds	on	Immediately
Level battery: charged		-	-	-	GREEN	continuous 3 seconds	on	Immediately
Battery running low	[Battery level < 20%]	-	-	-	RED	continuous 3 seconds	long blink	Immediately
Turn OFF Battery dead	[Battery basically dead e.g. 5%]	-	-	-	RED	continuous 3 seconds	short blink	Immediately
Charging: not full yet	Plug the cable	ORANGE	continuous ∞	None	-	-	-	Until unplugged
Charging: full		GREEN	continuous ∞	None	-	-	-	Until unplugged
Monitoring alert	[Monitoring alert]	-	-	-	YELLOW	blink for 3 seconds	Short blink	Immediately
Connection status: connected	2 quick press	-	-	-	BLUE	continuous 3 seconds	on	Immediately
Connection status: disconnected		-	-	-	BLUE	continuous 3 seconds	Short blink	Immediately
Disconnected	[Glasses disconnect from phone]	-	-	-	BLUE	continuous 3 seconds	Short blink	Immediately
Turn ON/OFF: tuned ON	press for 4"	GREEN	continuous 3 seconds	on	-	-	-	Immediately
Turn ON/OFF: turned OFF		RED	continuous 3 seconds	on	-	-	-	Immediately
Unpair	press for 8" (or as far as the outside LED becomes orange)	RED	continuous 2 seconds	blink	-	-	-	Immediately
Reset	press for 15"	-	-	-	-	-	-	-



**Wayfarer Research Platform**

## WAYFARER RESEARCH PLATFORM

- Specs :
  - BT, IMU, Hall sensor, RGB Led, Touch
  - Can be used with any I2C sensor
  - Various expansion connectors (touch, haptic, ...)
  - All production files (ME/EE/FW) are internally owned: very fast rework cycle.



## WAYFARER RESEARCH PLATFORM

