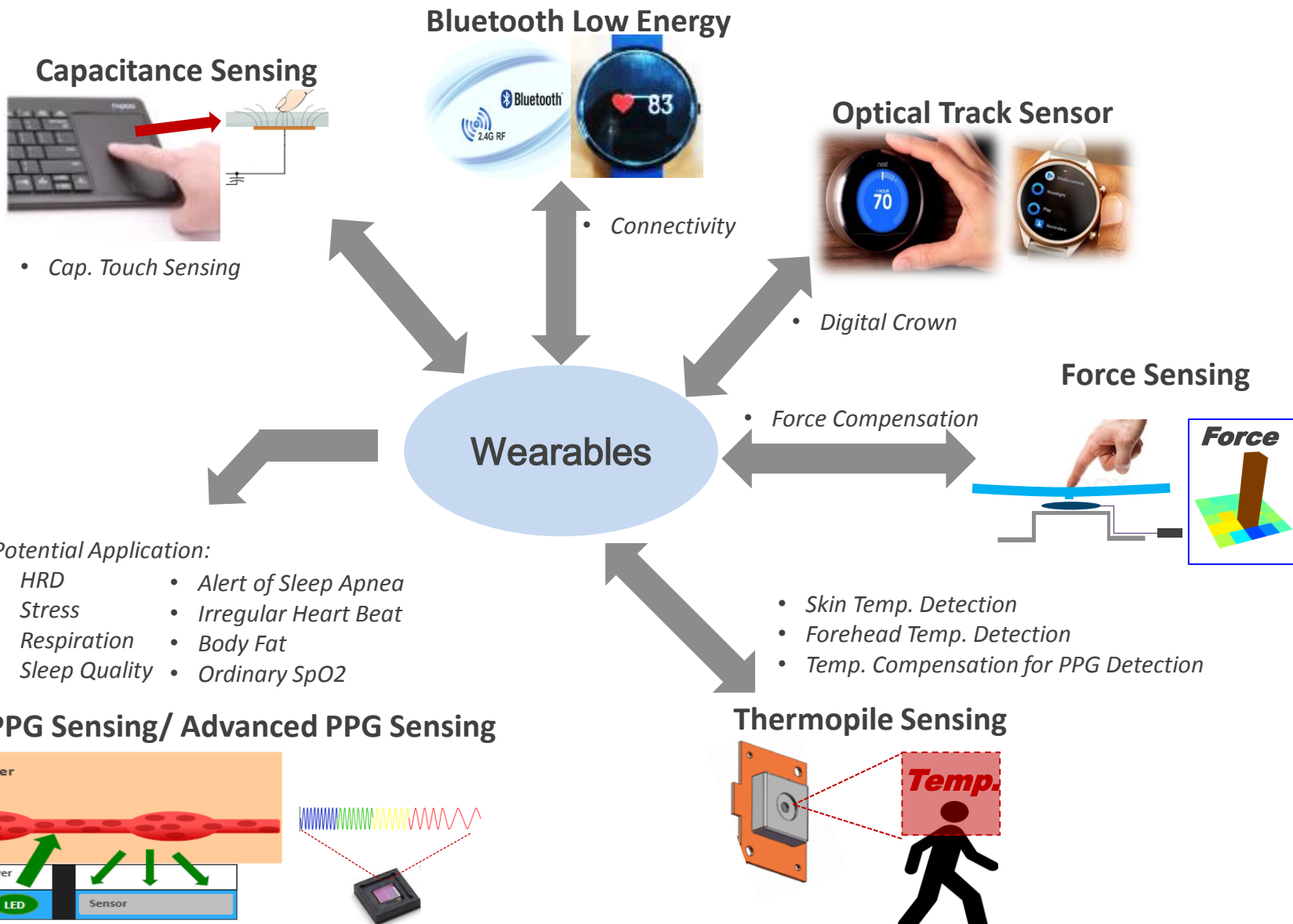


Heart Rate PPG Sensor

Product Family Overview

Q4 2019

PixArt's Vision for Wearables



Potential Application for Health Management

Heart Rate / Exercise

- Static HR / Exercise HR with motion compensation
- Exercise Intensity Zone
- Lactate Threshold: Aerobic / Anaerobic
- VO2Max Estimate

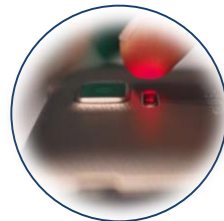
SpO2

- Mountain Climb Application
- Altitude Training Application
- Cardiopulmonary Quality
- Breathing Problem during Sleep

Temperature

- Skin Temperature
- Object Temperature
- NIR Array Sensor (Thermograph)

UV Sensor



Heart Rate Variability(HRV)

- Stress Tracking
- Sleep Quality Trend
- Irregular Heart Beat Screen
- Vascular State

Baby/Elder Monitor Application

- Heart Rate Detection
- Stress Tracking
- Cardiopulmonary Quality
- Respiratory rate
- Sleep Quality Trend
- Irregular Heart Beat Screen
- Breathing Problem during Sleep
- Temperature Sensing

General Introduction of PPG Application

Potential Application using PPG

- Heart Rate Detection
- Stress Tracking (HRV SDNN)
- Respiratory Training (Respiratory Detection)
- Cardiopulmonary Quality (SpO2)
- Breathing Problem during Sleep (SpO2 trend)
- Sleep Quality Trend (HRV RMSSD)
- Irregular Heart Beat Screen (HRV nRMSSD)



Product Matrix

Note:

1. DI : Double Injection cover
2. PC : Printing Cover

Status	MP		MP	MP	MP	MP	
Part Number	PAH8011ET		PAH8011ES	PAH8013ES	PAH8112ES	PAH8112ET	
Application	Wearable		Wearable	Hearable	Wearable	Portable	
Package Size	3.6 x 6.36 x 1		4.0 x 4.0 x 1	4.0 x 4.0 x 1	4.0 x 4.0 x 1	3.6 x 6.36 x 1.0	
Support Cover Type	PC ²	DI+Wall	DI+Wall	DI ¹	DI+Wall	PC ²	
Typ. Current during HRD (mA)	0.09	0.18	0.34	0.55	0.185	0.07	
LEDs	3 (G/G/IR)		3 (G/G/IR) , External	2 (R/IR) , External	4 (G/G/R/IR) , External	3 (G/R/IR)	
Potential Application							
HRD	✓	✓	✓ , Sport HRD	✓	✓ , Sport HRD	✓	
Stress Tracking	✓	✓	✓	✓	✓	✗	
Respiratory Training	✗	✗	✓	✗	✓	✗	
Cardiopulmonary Quality	✗	✗	✗	✓	✗	✓	
Breathing Problem during Sleep	✗	✗	✗	✗	✓	✗	
Sleep Quality Trend	✗	✗	✓	✗	✓	✗	
Irregular Heart Beat Screen	✗	✗	✓	TBD	✓	TBD	