




Product Lineup

PJT Name	Functions	Size(W x D x H, mm)	Status
Cichlid+	Hybrid PPG Module (Sensor + AFE + Circuit)	3.36 x 5.16 x 1.3 ~ 1.5	ready for mass production
Octopus	Cichlid+ with ECG	4.16 x 6.10 x 1.3 ~ 1.5	Design completed Ready for sampling
Starfish	Octopus with Temp.	TBD	Component Configuration Completed Ready for design
Hippocampus	Starfish with illuminance		

- **Product Support (feasibility study)**
Available in 6 weeks after order.
(1 ~ 2 weeks after request)
- **Component selection**
1 ~ 2 weeks (after feasibility study)
- **Development (sample)**
6 ~ 8 weeks (with operating test)

Intellectual Properties

Approved

Patent 3
Trademark 6
(China 1)

Pending

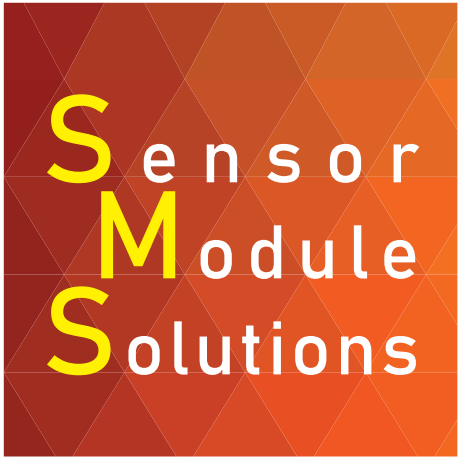
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PCT
Published

3

- Sensor Package Structure (0042162)
- Vital Monitoring System (0032951)
- Environment Monitoring System for Corp Cultivation (0078523)
- Device Control system using near field communication (0053266)
- Emergency System based Vital signal and voice (0012625)
- Device of Vital Signal Measurement (0146331)

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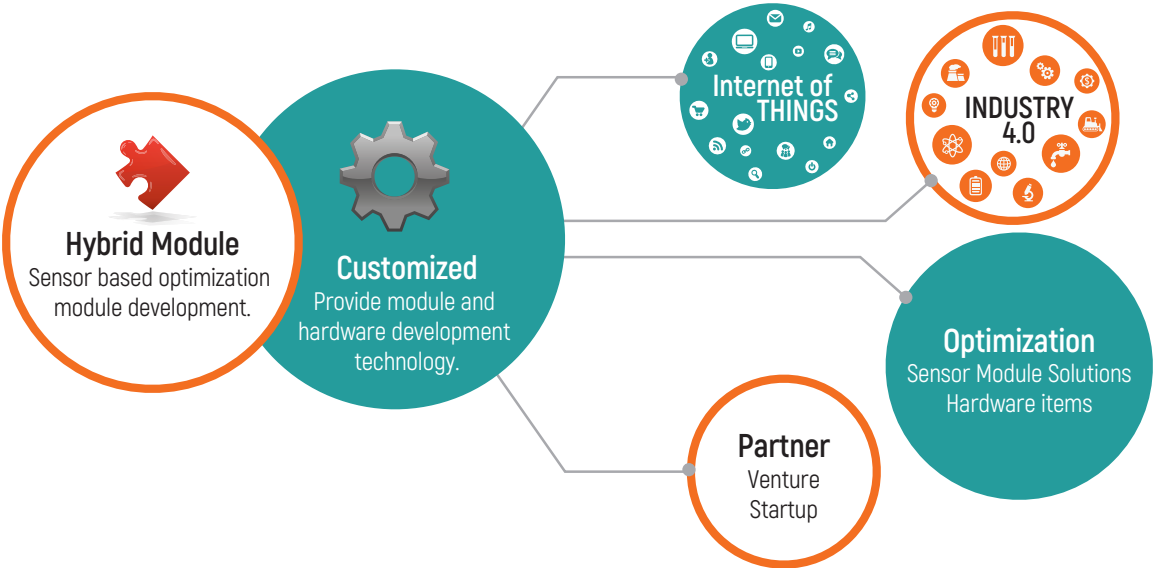
Healthcare
Wellness
Device Concept
Customizing Development



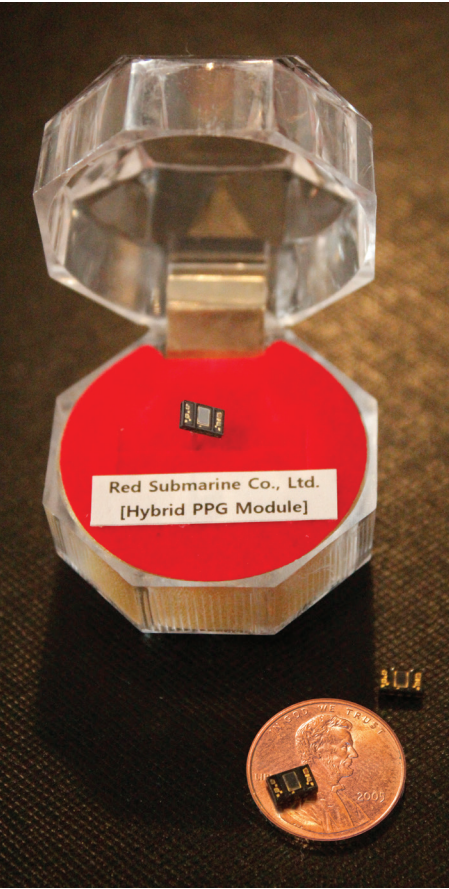
RED Submarine Co., Ltd.

Since its establishment in 2014, Red Submarine has supported development and commercialization of various types of modules required for function implementation in the IoT market as a manufacturer of sensor-based modules.

Red Submarine envisions a BM (Biz. Model) focusing on the manufacturing of composite sensor-based hybrid modules, and its features are to design optimized ideas for standardized form and demands compared to existing companies. To this end, it has kept close partnerships for parts supply necessary for the function implementation, and secured a manpower network to realize the ideas.



Hybrid PPG Module



Functions

- Heart Rate Monitoring (HRM)
- Heart Rate Variability (HRV)
- Pulse Oximetry (SpO2)
- Vo2 Max.
- Calorie Expenditure
- Stress Analysis

Application

- Replace of parts

Wearable device

- iWatch(Apple)
- G-Watch(LG)
- Gear(Samsung)
- Fitbit
- Suunto

SMARTPhone

- iPhone(Apple)
- Galaxy Series(Samsung)
- G Series(LG)
- Huawei
- Oppo

Customizing

- Medical
- Cosmetic
- Fitness
- Healthcare
- Pet

Technology Separation

Tech. Tier			
Optic Sensor	Optic IC	Sensor Module	Sensor Module
LED	LED	LED	LED
Photo Diode	Photo Diode	Photo Diode	Photo Diode
	IC Part	IC Part	IC Part
Cheaper Technical Composition Performance Low Tier	Generic Use Technical Composition Pin Counts	Generic Use Technical Composition Variety size	Independent Use Bigger size Expensive

Positioning

