

# Sensortek Technology Corp. Investor Conferences



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昇佳電子股份有限公司

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- This presentation includes forward-looking statements. All statements, other than statements of historical facts, that address activities, events or developments that Sensortek Technology Corp. expects or anticipates will or may occur in the future (including but not limited to projections, targets, estimates and business plans) are forward-looking statements.
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# Agenda

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- I . Company Introduction
- II . Market Outlook
- III . Our Products
- IV . Financial Performance
- V . Future Development

# **I . Company Introduction**

# About Us

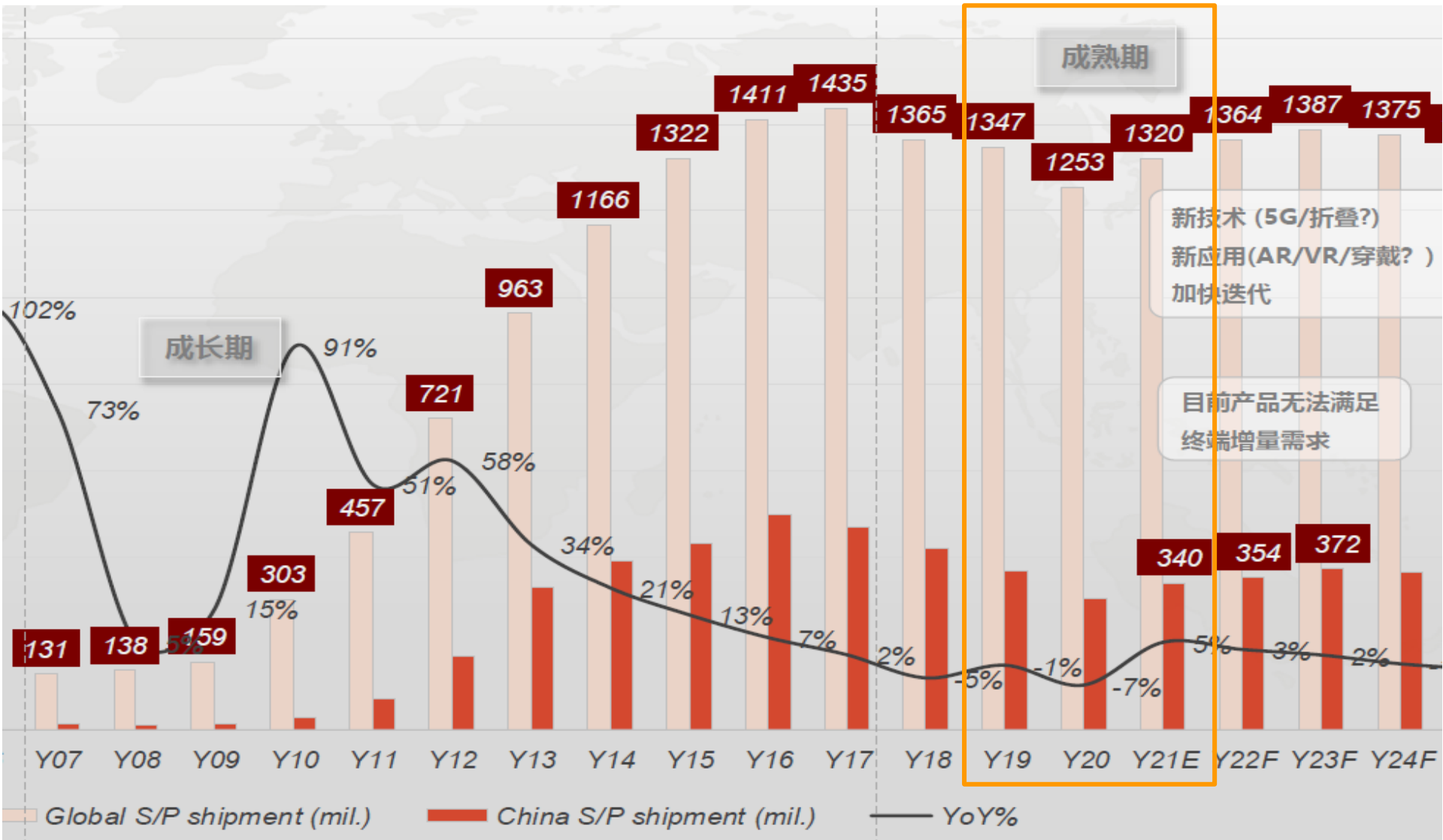
Company Name	Sensortek Technology Corp.	
Founded	December 1, 2009	
Capitalization	NT 489,126,180	
Chairman and CEO	Sheng-Su Lee	
Number of Employees	163	
Location	Tai Yuen Hi-Tech Industrial Park, Jhubei City, Hsinchu County	
Products	<ul style="list-style-type: none"> <li>• <b>光學感測晶片 Optical Sensor</b> <ul style="list-style-type: none"> <li>- 近接感測晶片 Proximity Sensor (PS)</li> <li>- 環境光感測晶片 Ambient Light Sensor (ALS)</li> <li>- 色彩感測晶片 Color Temperature Sensor (RGB)</li> <li>- 閃頻偵測晶片 Flicker detection sensors</li> </ul> </li> <li>• <b>微機電感測晶片 MEMS Sensor</b> <ul style="list-style-type: none"> <li>- 加速度感測晶片 Accelerometer Sensor (GS)</li> </ul> </li> </ul>	
Listing	Taipei Exchange Market (TPEX) 06/08/2020 (上櫃) Emerging Stock Market (TESM) 06/18/2019 (興櫃)	

# Milestones

- 2009: Team established
- 2010: [Optical] Proximity (PS) & ambient light sensors (ALS)
- 2012: [MEMS] Accelerometers (g-sensors)
- 2013: Spinoff
- 2017: [Optical] Invisible PS+ALS solution
- 2018: [Optical] Under display & slit type PS+ALS solution  
[MEMS] Low-power g-sensors
- 2019: [Optical] RGB sensors for smartphone screens
- Listed at the Emerging Stock Market (TESM) 興櫃
- 2020: Listed at the Taipei Exchange Market (TPEX) 上櫃  
[Optical] RGB + flicker sensors for smartphone cameras

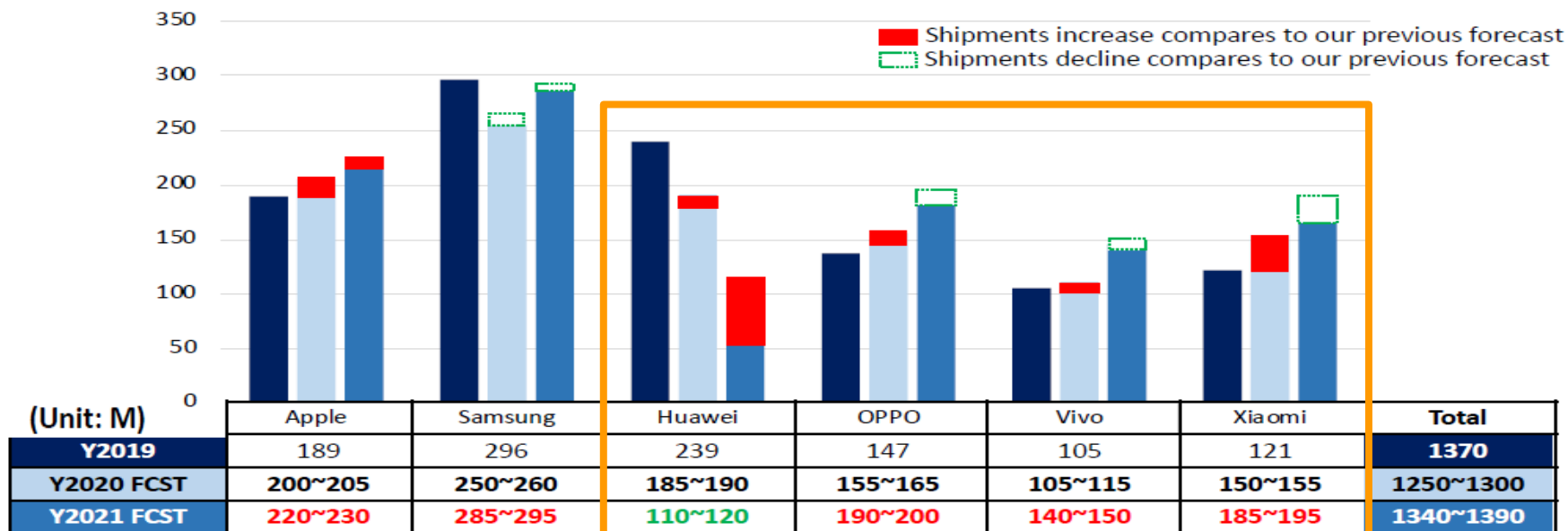
# **II. Market Outlook**

# Global Smartphone Shipment Forecasts





# Smartphone Shipment Forecast by Brand



\*Note: Our forecast of OPPO now includes shipments of Realme and OnePlus, Huawei includes New Honor

Figure: Worldwide Smartphone Shipment Forecast by Brand (Unit: M)



Source: Isaiah Research, August 2021

# **III. Our Products**

# Optical Sensor for displays

## Optical sensor for displays :

### Proximity Sensors (PS)

近接感測晶片 → 關屏防誤觸  
turns off the display (anti-touch)

### Ambient Light Sensors (ALS)

環境光感測晶片 → 調節螢幕亮度  
... screen brightness control

- G1: PS + ALS 2-in-1 visible solution (2010)
- G2: PS + ALS 2-in-1 invisible solution (2018)
  - Under-display 屏下方方案 for AMOLED displays
  - Slit type 狹縫方案 for TFT displays

### Color temperature Sensors (RGB)

色溫感測晶片 → 調節螢幕色溫  
... screen color temperature control

- G3: PS + RGB sensors (2019)
- G4: PS + RGB sensors (2021)
  - Slit type & under display
  - for better reading experience



**PS + ALS shipment**  
 2018 : >340M pcs  
 2019 : >650M pcs  
 2020 : >720M pcs



**Waterdrop Screen**  
 狹縫(Slit) ALS/PS  
 狹縫(Slit) PS / 屏下 ALS  
 前攝旁 ALS/PS  
 (Aside of Front Facing Camera)



**Bezel-less Screen**  
 屏下(Under-display) ALS/PS  
 狹縫(Slit) PS / 屏下 Under-display ALS



# Proximity + ALS → for smartphone screens

- G1: PS + ALS visible solution 1x
- G2: PS + ALS invisible solution → 3x → 6x → 10x (MP) (H sensitivity)  
- Under-display solution for AMOLED
- G3: PS + RGB visible solution (2019) 1x
- G4: PS + RGB invisible solution (2021) 3x (MP)

水滴屏 (Teardrop-shaped)



全景屏 (Full screen)



瀏海屏 (Notch type)



開孔屏 (Apature type)



16:9 → 18:9 → 19:9 ...

## Sensitivity & feature Upgrades → ASP Boosts

感度及功能提升 → 平均價格提升

Upgrading because of increases in...

1. Display resolution
2. PPI density  
(resulting in a decrease in light transmittance)
3. AMOLED penetration rate

# Optical Sensor for Cameras

## Optical sensor for Cameras :

### 3ch RGB sensor

色溫感測晶片 → 協助後相機白平衡校正  
white balance correction (2021)

### Flicker detection sensors

閃頻偵測晶片 → 協助消除光源物理閃爍  
Flicker detection (2021)

## 3ch RGB + flicker shipment

2020 : 0

2021 : Stay Tuned



1. White balance (auto) with flash
2. White balance (auto) without flash
3. White balance (fluorescent lamp) without flash
4. White balance (warm lighting) without flash
5. White balance (cold lighting) without flash
6. White balance (daylight) without flash

## 3ch RGB sensor :

Camera RGB sensors are used for white balance correction. Different light sources come with different color temperatures, which can create unrealistic color casts in photos. White balance is the process of removing such color casts so that objects that appear white in person are rendered white in the photo. The white balance is automatically corrected and adjusted based on the color temperatures measured by the RGB color temperature sensor and the image sensor. 環境中充斥著各種不同的光線，這些光線有著不同的色溫，因此手機數位相機在進行拍照時，需要對這些光線進行校正，才能呈現出正常的白色。依據 RGB色溫感測器、影像感測器所測量的色溫來自動校正調整白平衡。



## Flicker detection sensors :

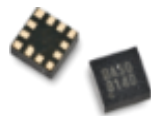
Detects the 50 Hz or 60 Hz flickers produced by incandescent or fluorescent lights. Helps eliminate the streaks and distortion effects caused by the flickering. 用於檢測環境中由白熾燈或螢光燈所產生的 50Hz或60Hz光源物理閃爍。協助手機攝像頭之圖像系統能夠消除人造光源的閃爍而出現的條紋和失真效果。

# MEMS Sensors

## Accelerometers (G-sensors)

Rotation detection

加速度感測器 → 屏幕旋轉偵測



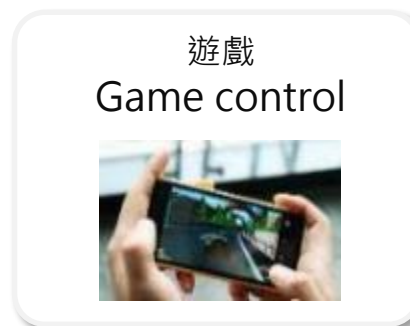
## G-sensor shipment

2018 : >30M pcs

2019 : >55M pcs

2020 : >80M pcs

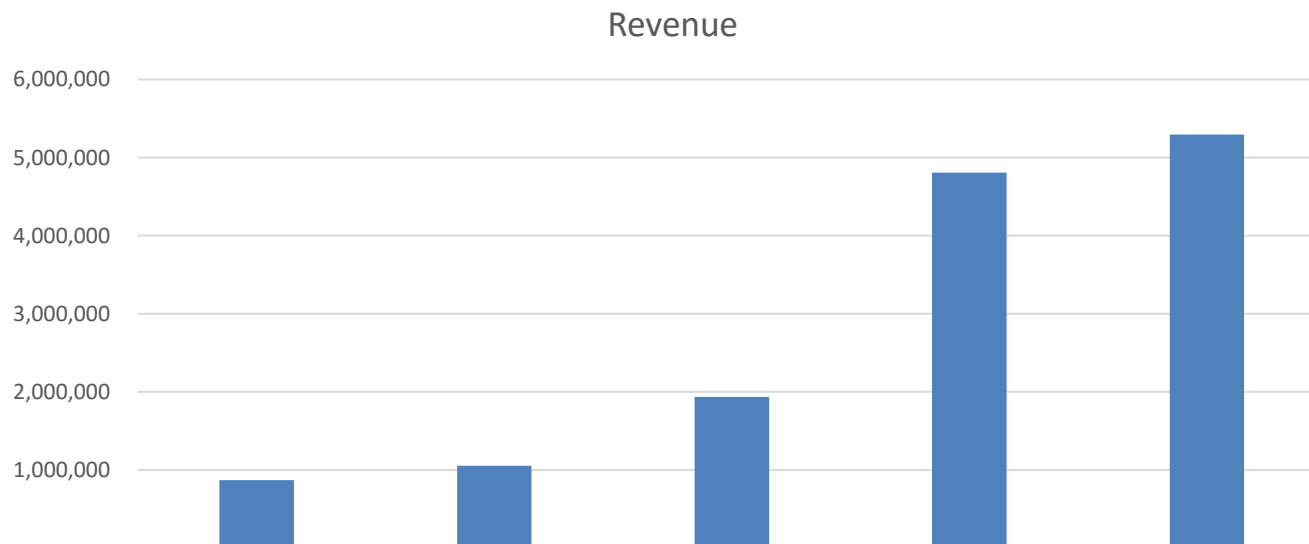
- √ G-sensors for smartphones
- √ Low power g-sensors for wearable & IoT devices



# **IV. Financial Performance**

# Financial Performance

Unit: NT 1,000



Item	2016	2017	2018	2019	2020
Revenue	869,687	1,053,451	1,935,513	4,806,152	5,296,054
Gross margin	137,375	158,184	649,442	2,018,872	2,127,828
Margin %	15.80%	15.02%	33.55%	42.00%	40.18%
Operating income	4,931	8,751	366,646	1,497,236	1,537,189
Net income	5,169	5,309	326,275	1,322,900	1,365,454
EPS (NT\$)	0.14	0.14	8.64	35.01	28.81

Note: The EPS values listed here are based on the capital of 37,781 thousand shares.



# Income Statement

Item	Q3 21		Q1~Q3 21		Q1 21		Q2 21		Q3 20		Q1~Q4 20	
	Results	% of sales	Results	% of sales	Results	% of sales	Results	% of sales	Results	% of sales	Results	% of sales
Net Sales	1,925,603	-	4,692,621	-	1,268,541	-	1,498,477	-	1,500,516	-	5,296,054	-
Gross Profit	921,187	48%	2,158,404	46%	512,956	40%	724,261	48%	626,215	42%	2,127,828	40%
Operating Expense	241,225	13%	608,378	13%	167,906	13%	199,247	13%	175,320	12%	590,639	11%
Operating Income	680,546	35%	1,550,619	33%	345,055	27%	525,018	35%	450,895	30%	1,537,189	29%
Income before Tax	702,069	36%	1,589,236	34%	350,677	27%	536,490	36%	451,245	30%	1,550,117	29%
Net Income*	589,738	30%	1,336,223	29%	295,568	23%	450,917	30%	397,497	26%	1,365,454	26%
EPS	12.06	-	27.32	-	6.04	-	9.22	-	8.13	-	28.81	-

Unit: NT\$ thousands (except EPS)  
Accounting standard: IFRS

\* Listed on the English translation of our financial statements as  
"Profit (loss), attributable to owners of parent"

# Balance Sheet

Item	2021/9/30	2021/6/30	2021/3/31	2020/12/31	2020/9/30
Total Assets	6,973,430	7,034,889	6,546,874	6,213,228	5,665,950
Current Assets	5,628,478	5,738,903	5,288,197	5,718,727	5,500,709
Cash & Equivalents	2,338,478	3,402,027	2,215,010	3,086,052	1,743,561
AR	814,803	489,591	450,143	452,893	489,647
Inventory	413,657	425,377	305,180	320,395	382,448
Total Liability	2,168,520	2,793,386	2,780,120	1,665,215	1,459,386
AP	914,921	802,201	688,059	759,395	616,844
Shareholder Eq.	4,804,910	4,241,503	3,766,754	4,548,013	4,206,564

Unit: NT\$ thousands  
Accounting standard: IFRS

# **V. Future Development**

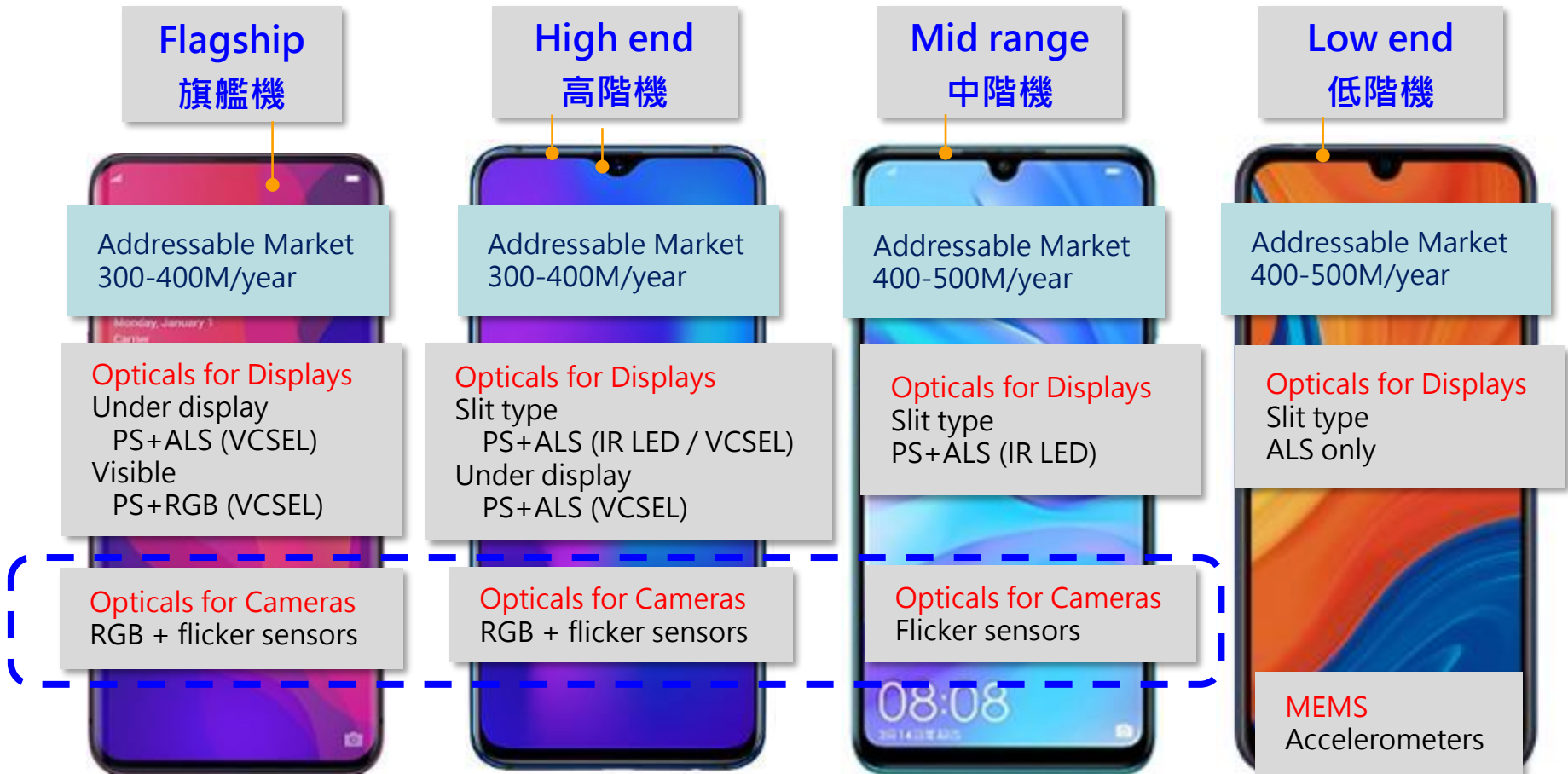
# Going Forward

1. **Optical sensors for smartphone screens** 前螢幕應用
  - PS + ALS visible solution 調整顯示亮度
  - High-sensitivity PS + ALS invisible solution → 3x → 6x → 10x → 15x sensitivity
  - PS + RGB visible solution 調整顯示色溫 → invisible solution (ES ready)
2. **Optical sensors for smartphone cameras** 後相機應用 white balance correction 白平衡校正
  - 3-channel RGB sensors → 6-channel for better color detection (coming soon!)
  - Flicker sensors 閃頻偵測
3. **MEMS: Gyroscopes** 加速MEMS陀螺儀感測器開發
  - Accelerometers + Gyroscopes (2 in 1) for high-end smartphones (coming soon!)
4. **Other applications** 其他非手機之應用
  - TWS: proximity sensors & accelerometers
  - Smart watches: ambient light + UV, heartbeat sensors, accelerometers
  - Smart speakers: ambient light sensors
  - ...and more (e.g. auto & industrial)

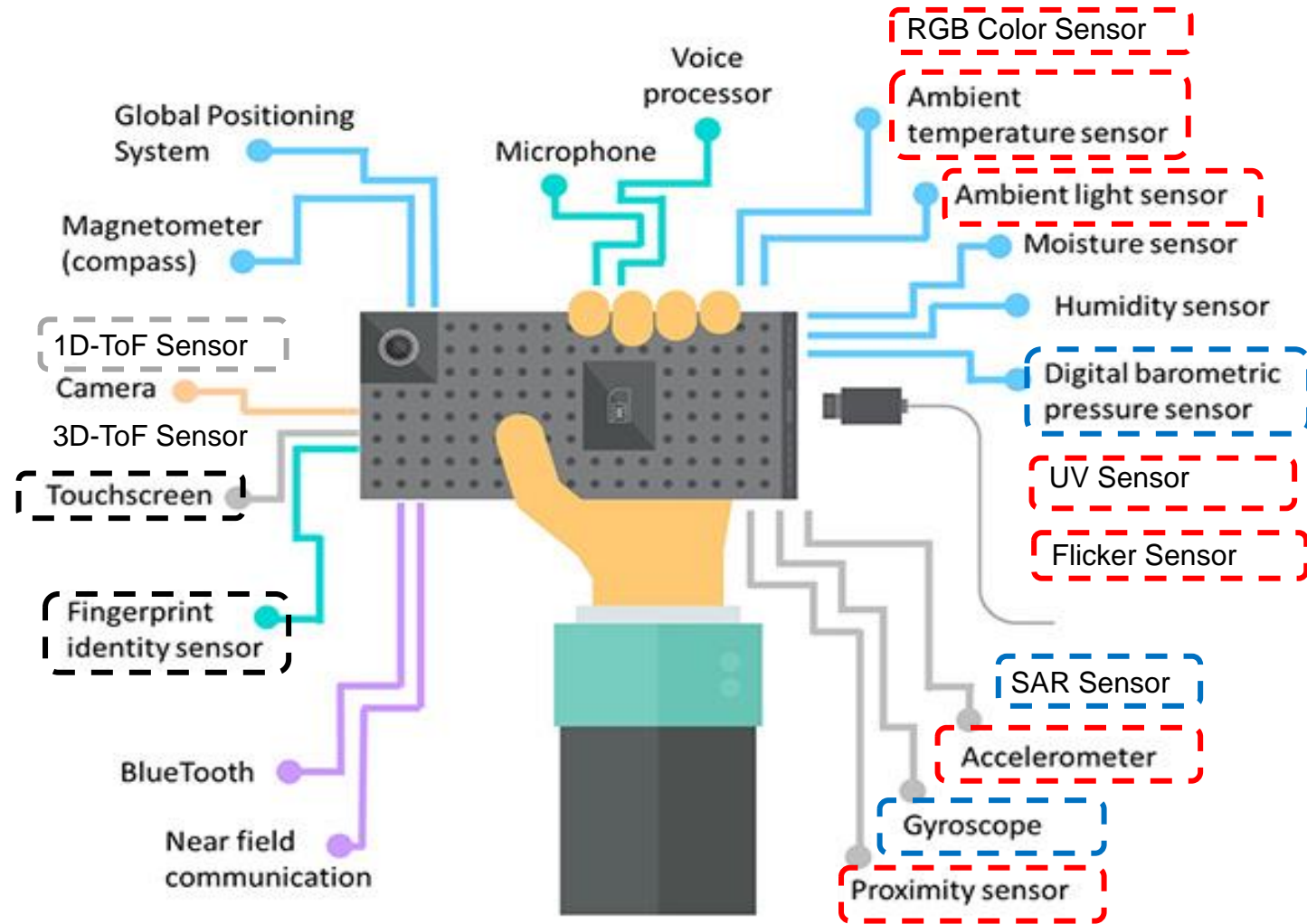
# Before 2020



# 2021: Three Smartphone Sensors



# Stay Tuned

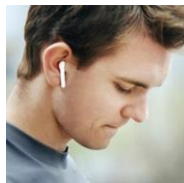


# Wearable Devices : Optical + MEMS

## True wireless stereo (TWS) earbuds

Accelerometers → click detection 敲擊偵測

Proximity sensors → on/off switch 功能啟用開關



### 敲擊偵測 Click detection

- 有來電時 Incoming call
  - 單擊接聽 Click to answer
  - 雙擊拒接 Double click to reject
- 音樂播放 Music mode
  - 單擊暫停 Click to pause
  - 雙擊換曲 Double click to switch



Gesture control



On/off control



Proximity detection (ELA)



Ambient dimming control (Smart speaker)

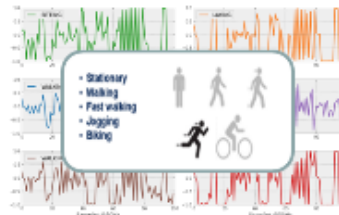
## Smart watches & fitness trackers

Accelerometers → motion detection 移動偵測

Optical sensors → heartbeat detection 心律偵測 & UV sensors 紫外線感測



### 運動偵測 / 計步 Motion detection



### 抬手亮屏 / 動態心率輔助 Heartbeat detection



### 睡眠偵測 / 久坐提醒 Sleep quality monitoring





# Speed up MEMS Gyroscope sensor

- 轉屏
- 敲擊
- 遊戲
- 計步

Accelerometers  
(G-sensors)  
重力加速度計

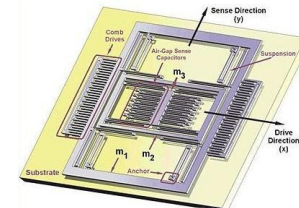
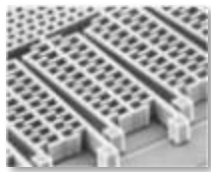
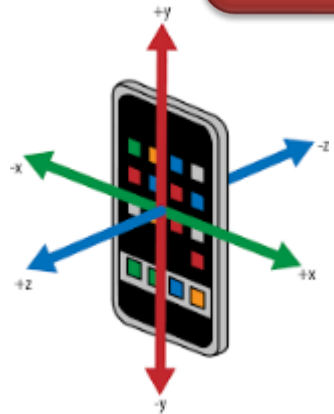
MEMS Sensor

Gyroscope  
陀螺儀

- 遊戲旋轉
- 空中指標
- 光學防抖
- 環景照相

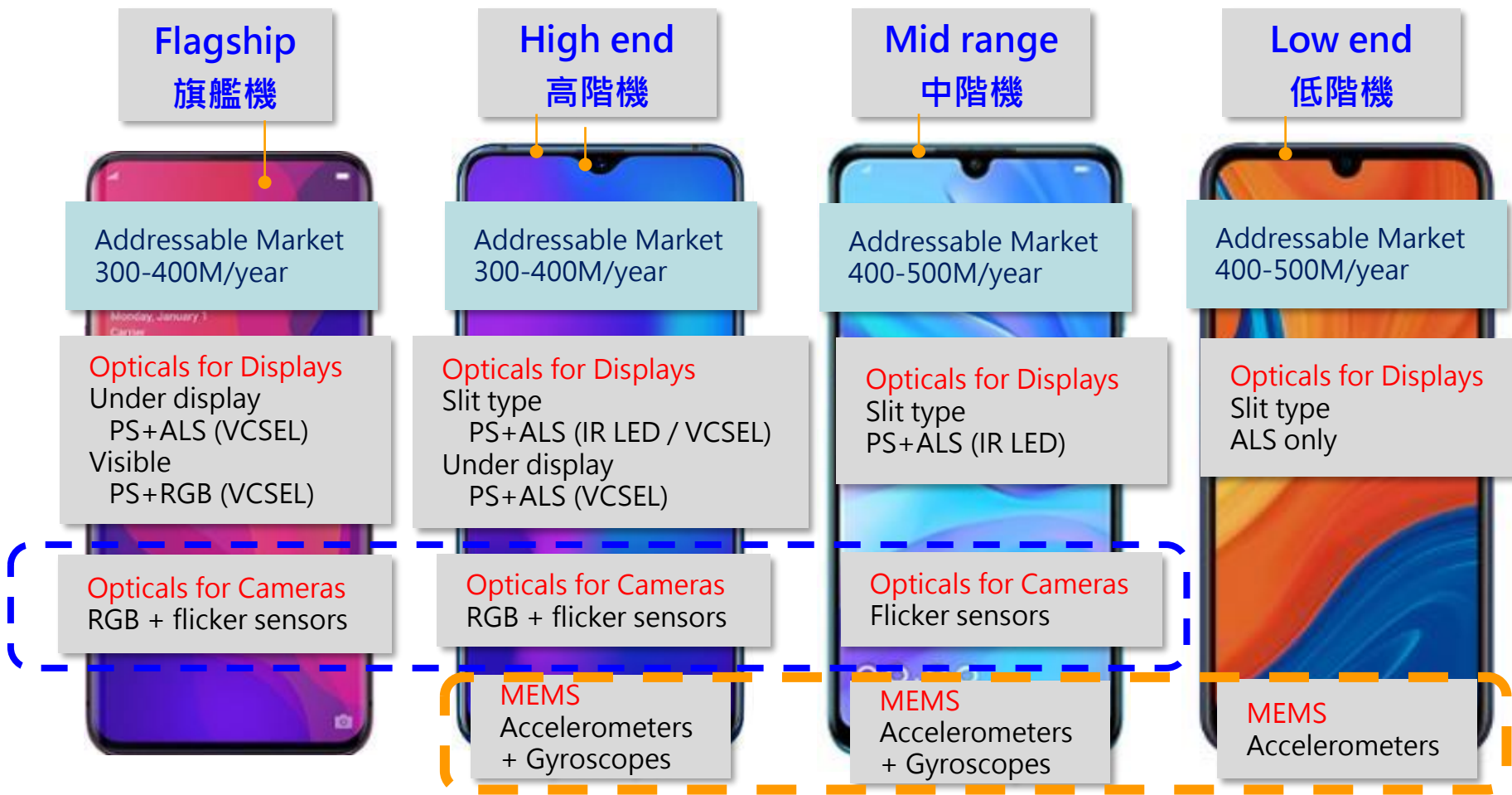
6 axis  
IMU

- AR/VR
- 室內導航
- 3D game
- 姿態辨識



1. Improve integration (3 Axis → 6 Axis)
2. Support 2 in 1 application requirements for high-end smartphone

# Going Forward





# Thank You

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