FlightSense™

Low Power Detection
Ranging & Proximity
Applications
Low-Power Detection

• **FlightSense allows low-power detection**
  • All-in-one solution
  • Immune to color, texture, and material
  • Detection to distances of 120cm
  • Down to 175uW at 1Hz
  ➔ Unlocking battery-operated, high-performance applications!

**Complete Product Range**
- **VL6180X** up to 10cm proximity & ALS
- **VL53K0** 15cm ranging with cover-glass
- **VL53L0** 30fps, up to 200cm
- **VL53L1** 60fps, up to 400cm
Ranging & Proximity

• **FlightSense enables outstanding performance**
  • Full range of products up to 400cm!
  • Works behind many types of cover-glass materials
  • Performance proven even for challenging industrial design

⇒ **Unlocking multiple applications & use-cases!**

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Android 7 Nougat ready
FlightSense Breakthrough Technology

FlightSense Principle

- Emitter
- Sensor
- Photon
- Target

Measured distance = Photon travel time / 2 \times Speed of light

Fully Integrated Time of Flight Module

- True distance measurement
  - Independent of target size, color & reflectance
- Very fast (few ms)
- Low power

Measurement at the speed of light! 1cm round-trip in 67ps
FlightSense Highlights

ST is World Wide #1 Time-of-Flight supplier

Over 4 years of proven track record in manufacturing
>> 150M products shipped
> 300% AAGR

FlightSense Laser AF camera assist in >60 phones
Endless applications on the market: Robots, Drones, Smart-home sensors, Faucets...

New Generation Ready: Unique Direct ToF features
Multi targets detection, Multi zones ranging
…and a complete roadmap under development
Key Target Applications

**LiDAR & Depth-map**
- High resolution CMOS SPAD sensor
- Detection up-to 200m

**Gesture**
- Power, size and performance
- New ways to interact

**Presence: User Detection**
- Security
- Power saving

**Ranging & Proximity**
- True distance
- Ranging up-to 4m

**Camera Assist**
- Instant focus
- Scene understanding
**Camera Assist**

- **Autofocus Camera Assist (front or rear camera)**
  - Instant Focus over entire camera focal range
  - Fast & Robust solution for low light & low contrast

- **New innovative use cases**
  - Multi-zone scanning + multi-object detection
  - Dual-camera depth-map assist
  - Flash-power adaptation versus distance to object

**Complete Product Range**

- **VL6180S** 15fps, 40cm + ALS
- **VL53L0** 30fps, up-to 200cm
- **VL53L1** 60fps, up-to 400cm
- **VL53L5** 120fps, up-to 400cm/zone
Immediate detection of user
Accurate distance measurement

Security
Fast screen -lock / un-lock when user detected

Power saving
Very fast power-on / off
Augmented Touchscreen
- Dynamic UI
- Contextual menu
- Slider control
- Dynamic swipe

Virtual Touch Control
- Front view:
  - Hand tracking
  - Hand posture recognition
- Side view:
  - UI control (Virtual button, pointer…)
  - Low res. hand tracking

Gesture
- Fully integrated miniature optical module
- Cost, size, & power breakthrough
  - Vs depth-map camera
- Delivering an improved user-experience
  - Vs conventional IR-based solutions

Gesture Product Range in Development
- VL53M1 3D hand/finger tracking device, Consumer grade
- VL53M2 3D hand/finger tracking device, Automotive grade