



AGIL  Sense

# OBSTACLE DETECTION RADAR

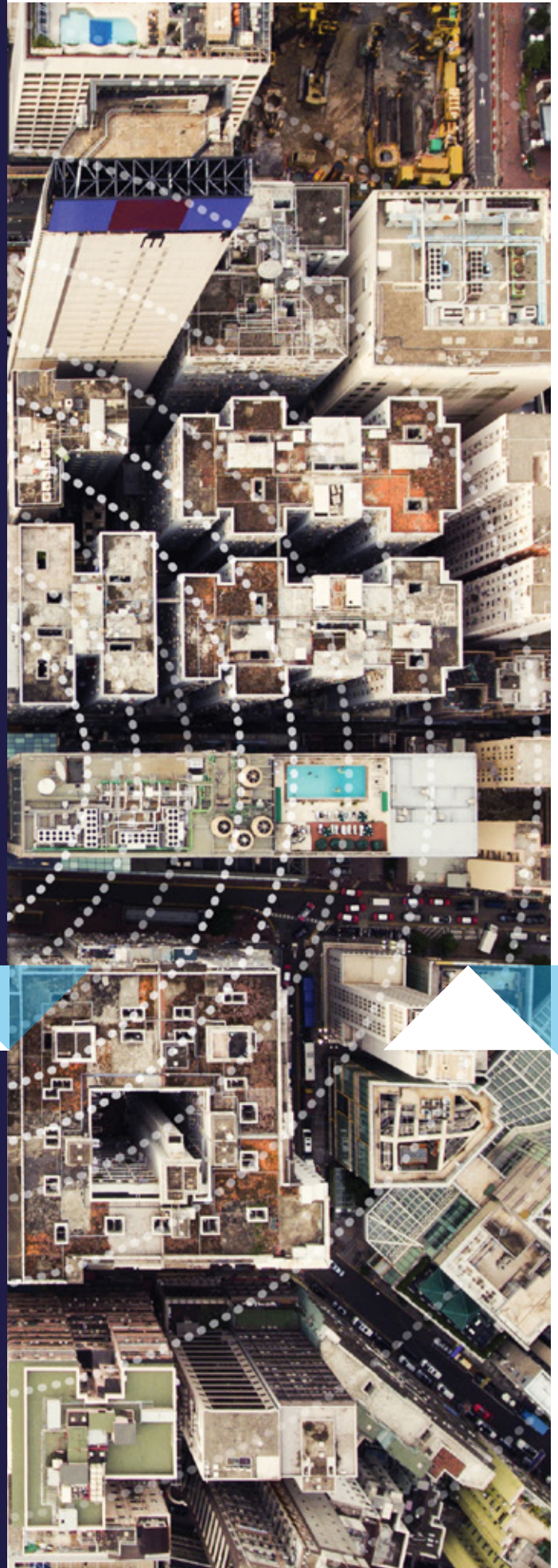
 ST Engineering



Through the simultaneous multi-target ranging and detection capability of our AGIL® Obstacle Detection Radar, we are obsessed with a deep sense of purpose to solve unique and complex robotics and drones' challenges to empower safer and smarter autonomous robots and drones.

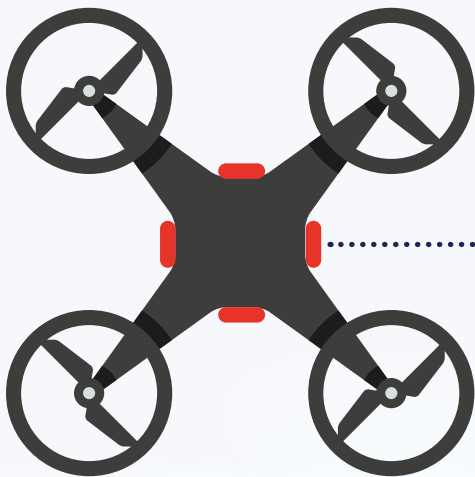
AGIL is our unique radar design and development approach, unifying emerging technology and experiential thinking to provide autonomous robotics and vehicles with accurate and precise radar vision. By harnessing our engineering team's over 25 years of expertise in advanced sensor technology, our market driven innovations deliver reliable and sustainable solutions to our customers globally.

# About AGIL® Obstacle Detection Radar

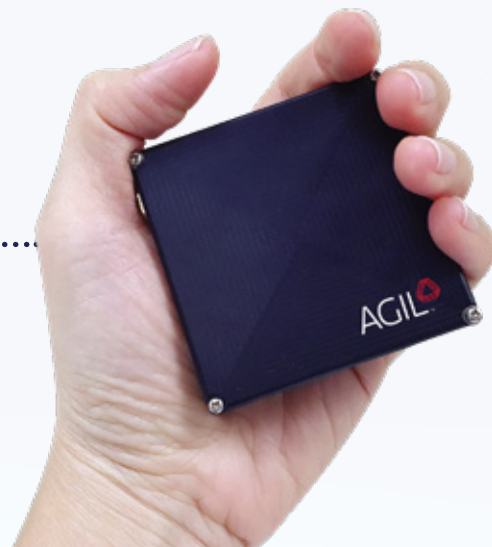


# HOW IT WORKS

*Top view of drone*



*Obstacle Detection Radar attached to drone*



The Obstacle Detection Radar continually sends a fixed set of signals serially through their radar front end. These signals propagate through the air and reflect off nearby objects back to the radar. The radar receives these signals and compares it with the initial signal to determine the range and bearing of the object. All these are performed in milliseconds, allowing it to provide blazing fast information about the surrounding obstacles to the drone's flight controller.

Depending on customers' requirements, it can be strategically placed just in front, front and back or at 4 sides to cover 360°, as shown above.





# HELPING DRONES AND ROBOTS TO SENSEMAKE THEIR ENVIRONMENT

The movement of autonomous machines can sometimes be obstructed by obstacles along their routes in the increasingly complex and ever-changing ground or air space, posing injury risks to public and potential damage to property or the machine itself. The Obstacle Detection Radar is a viable solution that can detect both moving and stationary objects in its field of view, providing range and bearing information for collision avoidance.



## APPLICATIONS

### **AUTONOMOUS DRONES:**

In urban air spaces where medium-sized drones are used for

- Deliveries
- Remote surveillance and surveying
- Spraying crop fertilisers
- Facilitating search and rescue operations

### **MOBILE INDUSTRIAL ROBOTS OR MACHINES:**

- Collection and transportation of goods
- Ground surveillance and area monitoring
- Autonomous lawn mower



## KEY FEATURES

- Detects up to 20 targets simultaneously
- Field-of-View (FOV) of 70° by 24°
- Detection range of up to 50 m
- Lightweight 40 g
- Dimensions 64 x 64 x 16 mm
- Rapid 80 Hz update rate
- UART/CAN Interface



## KEY BENEFITS

- Enables autonomous machines to navigate safely, avoiding collisions and loss of costly payloads
- Provides accurate sensing capabilities by identifying multiple targets in real-time
- Enables navigation beyond visual line of sight by providing a spatial sense of surroundings
- Low-cost, compact and easy to deploy
- Enables safe movement in harsh weather conditions
- Volumetric sensing capability ensures reliable detection even for objects with thin profiles (i.e. power lines, lamp poles, fences)
- Enables timely obstacle avoidance with a rapid update rate of 80 times per second
- User-configurable sensitivity levels for scenario handling

**ST Engineering Urban Solutions Ltd.**

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