

### The Problem

“What is out there that cannot be seen?”

This question is asked by many in the scientific and infrastructure communities, and the solutions typically include IR, ultrasound, and radar imaging; individually or a combination of sensors to provide a “picture”, “map” or “image” of the unknown.

### Applications

Automotive radar, utilizing small, low cost, low power (24 to 77 GHz) and mass produced sensors are common-placed commercial applications of FMCW radar today. When used in combination with other sensors, autonomous driving vehicles will also become common-place within the next few years.

Although HXI is not involved in the automotive radar industry, the chip sets and technology from the MMW industry can be utilized in other applications.

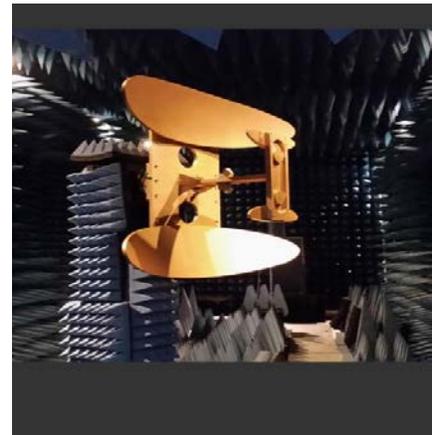
Imagine airport security without the need to be individually scanned. **It is coming !**

HXI has designed and delivered the 77 GHz MIMO radar (9 transmitters and 12 receivers) to make it happen. Partnering with a local university to provide the imaging software and sensor fusion to provide 3D imaging of an on-the-move target paves the way towards miniaturization of a MMW imaging system. Such systems can be used at checkpoints; thus enabling on-the move detection of potential threats, enhancing passenger’s overall experience, and achieving a high scanning throughput.

For the healthcare industry, we have designed and delivered an L-band prototype system to a major university. This system is being tested to provide non-invasive 3D images of breast cancer tumors.

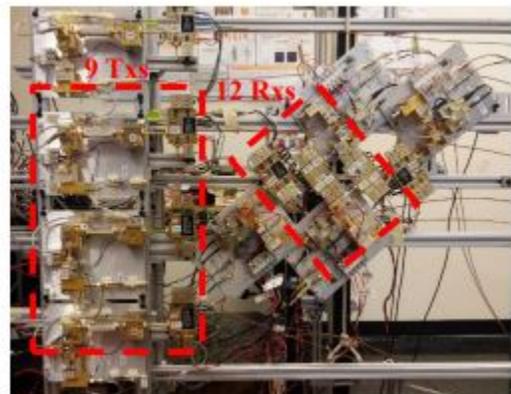
## Radar Imaging Solutions for Visualizing the Unknown

Several major airports utilize 94 GHz FMCW radars to provide Foreign Object Detection (FOD) on the runways.



94 GHz Antenna for FOD Radar

Built utilizing COTS components, HXI recently delivered a 94 GHz with a 1 GHz chirp bandwidth system with a detection range of 1 km for a -20dbsm target.



77 GHz MIMO Radar System

For the warfighter, the applications for situational awareness utilizing imaging are unlimited. Systems are currently in use to provide radar imaging for runway approach in adverse weather, heavy smoke, or blinding sand, conditions that prohibit the safe landing of planes and helicopters in remote hostile environments.

Mounted to a drone or robotic vehicle, an FMCW radar when used in combination with other sensors in an AI environment, would provide the end user the capability to map or image landscape, improving the ability to build interiors, caves and tunnels in all environmental conditions.



94 GHz FOD Radar Electronics Enclosure

Police, first responders, and other law enforcement agencies will benefit from knowing *“what is there that cannot be seen”* before committing resources to solve an unknown scenario.

If you have the need to visualize the unknown in a real-time scenario, let us work together to find an effective solution to meet your requirements.

Our vision is to:

*“Be the World’s Preferred Supplier in All Frequency Products”*

And we strive to exceed our customer’s expectations. Our mission is to:

- *Deliver the highest quality frequency products available.*
- *Exceed our customer’s expectations in ways even they don’t think were possible.*
- *Have our customers remember us as much for our friendly staff and commitment to the long term relationships as they do for our products.*