Integrated Wideband Stepped-Chirp Radar Sensor

Tech ID: 34168 / UC Case 2020-617-0

BRIEF DESCRIPTION

This technology represents a significant leap in radar systems, offering millimeter-scale range resolution and high angular resolution.

FULL DESCRIPTION

The disclosed Frequency Modulated Continuous Wave (FMCW) radar system achieves a wide synthetic bandwidth and high range resolution by combining the intermediate frequency components of multiple narrowband receivers. It is scalable and can be utilized in large antenna arrays for enhanced angular resolution, capable of accurately determining the location and velocity of objects within its range.

SUGGESTED USES

- Local-area smart infrastructure for improved monitoring and security.
- Automotive industry for advanced driver-assistance systems (ADAS) and autonomous vehicles.
- Aerospace and defense for surveillance and object tracking.
- Consumer electronics for motion detection and user interaction.
- Industrial automation for precise machinery control and monitoring.

ADVANTAGES

- Millimeter-scale range resolution for precise location and velocity estimation.
- High angular resolution through deployment in large antenna arrays.
- Scalable design suitable for a wide range of applications.
- Capability to meet stringent operating requirements of local-area smart infrastructure.
- Enhanced performance over conventional FMCW radar systems.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	12,474,462	11/18/2025	2020-617

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OTHER INFORMATION

CATEGORIZED AS

- **Sensors & Instrumentation**
  - Analytical
  - Other
  - Physical Measurement
  - Position sensors
- **Transportation**
  - Aerospace
  - Automotive

RELATED CASES

2020-617-0

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