



# mmWave RADAR

## People Counting and Monitoring Applications

### INTRODUCTION

There is an immense need in the market for a solution to count, track and monitor people without compromising on privacy while at the same time immune to environmental influencers like lighting and weather conditions. Mistral's mmWave RADAR offers a perfect, reliable low cost solution to address this need.

Mistral's mmWave Industrial (60GHz) RADAR on Modules are compact, light-weight RADARs providing superior functionalities for Industrial, Robotics, Healthcare and Automotive applications. The modules are based on Texas Instruments IWR6843AOP/IWR6843 ultra high-resolution single chip FMCW RADAR sensor SoC.

Mistral has developed a range of demo applications for mmWave Industrial (60GHz) RADAR on Modules to count and track the number of people in an area of interest.

These applications are easy to use, scalable with a plug and play feature enabling quick configuration.

### DEMO FEATURES

- Easy Configuration (Region, Type, Alarm, Duration, etc.)
- Plug and Play installation
- Scalable Architecture
- Multiple platforms support
- ROS Integration (Kinetic and Melodic)
- Database and Cloud Integration
- Simultaneous object tracking
- Record and Playback the tracked Object.

**The mmWave RADAR enables simultaneous counting and tracking of multiple objects in selected areas for variety of applications. Mistral provides ready-to-use mmWave applications for:**

#### PATIENTS AND ELDERLY CARE



- Patient Tracking and Monitoring (Quality of sleep, Movement tracking and Emergency alarm)
- Time spent at a defined Area
- People Count (Log)

#### INDOOR SECURITY AND SURVEILLANCE

- People Tracking and Counting
- Live and Historical Count
- Virtual Geofencing
- Alarm on Breach

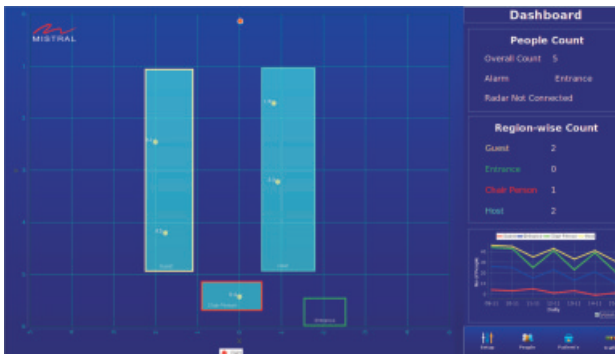


## PEOPLE COUNTING APPLICATION DEMO

Here is a sample view of the people counting application UI for a meeting room that counts and displays the number of participants and location in real-time.



The RADAR data processing chain implements object detection, range and axial velocity computation, static clutter removal, grouping and tracking algorithms providing processed point cloud RADAR data for object identification and tracking.



## DEMO ENVIRONMENT

- RADAR: Mistral's 60GHz AoPCB Module
- Location: Meeting Room
- Dimension: 4mx6m
- Operating Field of View: 120°
- People detection and tracking: every 250 milliseconds
- Region of interest: Host, Guest, Chairperson, Entrance
- POSE: Elevation 3m, 10 degree tilted down

## OTHER APPLICATIONS

The RADAR modules can be used in following application areas like:

- Building Automation
- Displacement Sensing
- Gesture Control
- Robotics
- Traffic Monitoring
- Proximity and Position Sensing
- Factory Automation
- Safety Guards
- Motion Detection
- Occupancy Detection

## CUSTOMIZATION

Mistral offers customization services for healthcare, security, industrial and other related applications.

These include:

- Custom application development
- Integrate with other sensors (Sensor Fusion)
- ML/DL based movement prediction and posture
- Antenna customization for various use cases.

