SRIR144V2-T

Traffic Radar System

Description

SRIR144V2-T is a real-time Imaging Radar System based on SVR4414/RAA270205 High Performance CMOS IC.

This module includes SVR4414/RAA270205 CMOS ICs which sends the radar signals in the 76 to 77GHz frequency band and captures the echo signal which is sent to a processor to process the data and extract the information like the position (in Cartesian coordinates), doppler and classification of all the vehicles within its field of view. It is an all-weather system with inbuilt calibrations. This module supports a 1Gbps ethernet interface for configuration and reading the output and an optional RS485 interface to receive the radar output.

The module detects and tracks up to 256 moving vehicles at 20 frames/sec (FPS). It can be configured in a trigger mode wherein it will send notifications only when a vehicle is within a certain zone crossing a specific speed boundary. The system also hosts a webserver for easy maintenance in the field for software updates, debug etc.

The software includes a web-based visualizer to configure the module and view the radar output in 3D. The visualizer also has the provision to overlay the radar output on a map which the user can align with the scene to allow for real world view of the scene. Users can draw regions on the map and the radar will mask off the objects which are outside the marked regions.

Typical Application

- Speed Enforcement System
- Intelligent Transportation System
- Vehicle counting and Classification

Features

High performance 76–77 GHz MIMO RADAR

Single module supports both long- and medium-range radar applications

Integrated processor to process the data

On-board IMU to detect the orientation of the unit

Sensor performance

- Maximum detection range of 300m range (for trucks) in LRR mode and 150m in MRR mode with resolution of 0.3m in LRR mode and 0.18m in MRR mode
- Maximum unambiguous doppler detection of 320 kmph with a resolution of 1 kmph
- Angular resolution of 2°
- Each sensor module supports up to 6 lanes
- Maximum EIRP of 36 dBm
- Supports both analog and digital beamforming

Perception level performance

- Simultaneous tracking of up to 256 objects
- 3 vehicle classification (bikes, cars and trucks). Upgradable to 6.
- Supports range, speed and class-based trigger notifications
- Measurement cycle time of 50ms

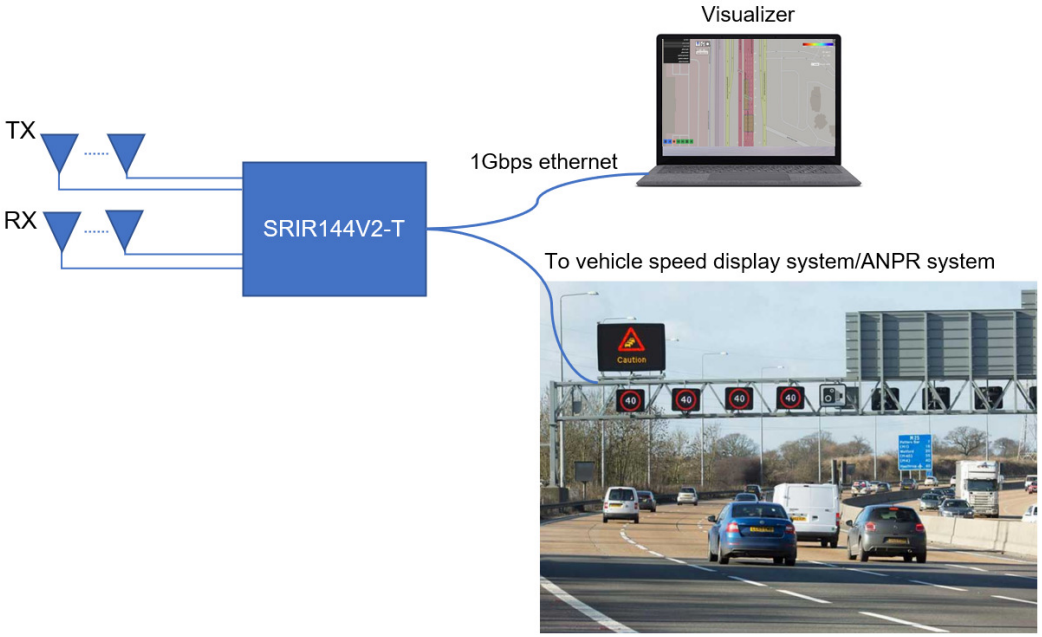
Output data is via 1Gbps ethernet interface

Power consumption of 15W with an input supply of 12V

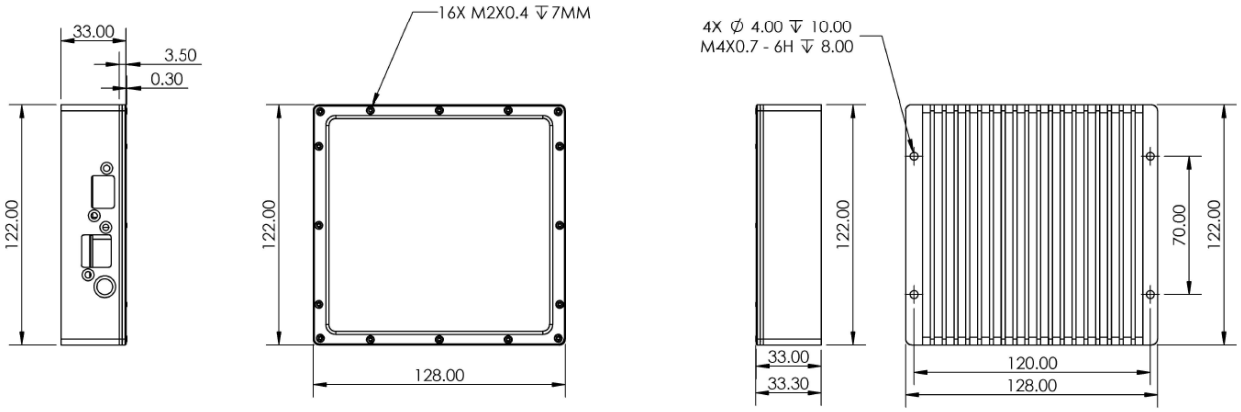
Operating temperature from -20° C to 60° C

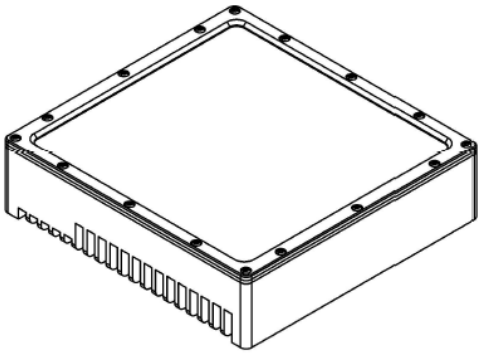
Compact size of 128mm × 122mm × 33mm

Block Diagram



Mechanical Drawings





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