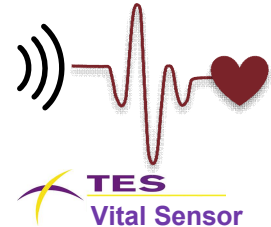


TES Vital Radar Sensor Product Brief

24 GHz Radar Sensor Module for Monitoring of Vital Signs of Life

Applications:

- Detection of micro-motion.
- Monitoring the rate of respiration/ heartbeat of human beings/ animals.
- High accuracy measurement of distance/ speed.
- Detection of alive people and animals under the debris for rescue operations.

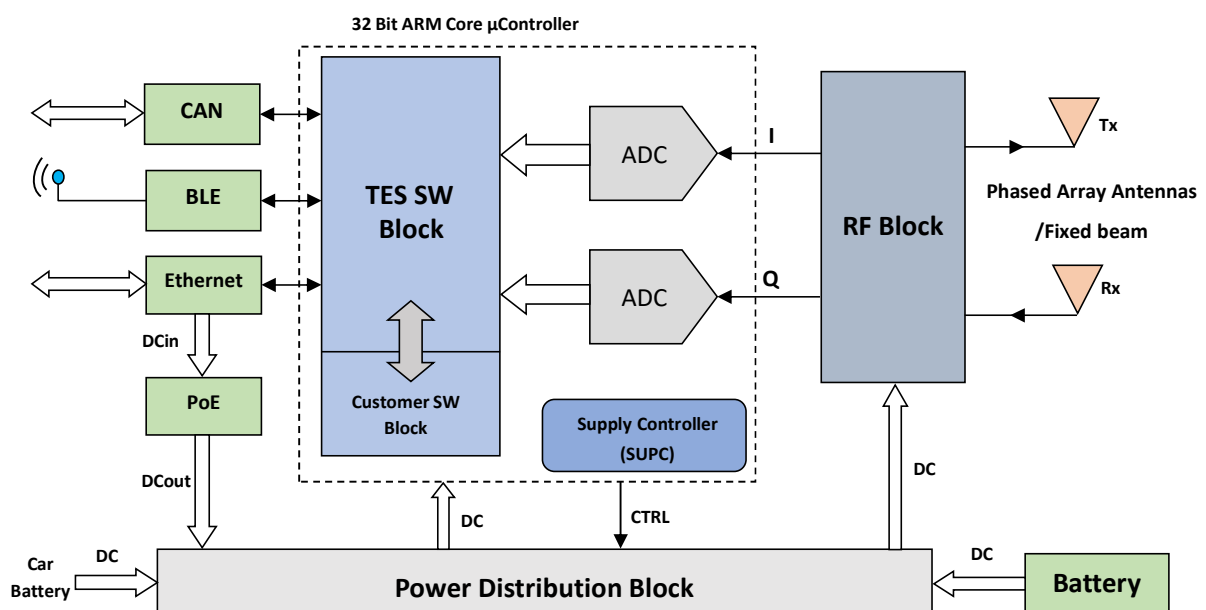


Technology:

- 24 GHz patch antenna.
- 32 bit ARM Cortex-M7 microcontroller unit for data acquisition and signal processing algorithms.
- Frequency Modulated Continuous Wave (FMCW) radar with the carrier frequency of 24 GHz.
- Measurement: Arctangent demodulation of In-phase and Quadrature-phase components of the sampled baseband signal.

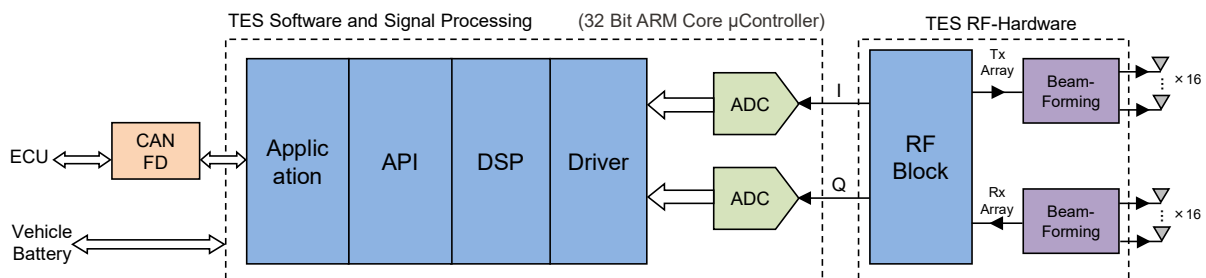
Sensor Module:

- Form Factor: 70 mm × 74 mm × 7 mm (Arm Core, RF Block and Antenna).
- Overall Power Consumption Typical 1920 mW in continuous operation.
- Interface: UART, USB, Bluetooth Low Energy (BLE), Controller Area Network (CAN).



Software

- Firmware for the control of the microcontroller allowing multiple user interfaces e.g. CAN, USB, BLE, Ethernet, and UART.
- Graphical user interface allowing flexible and convenient interface for the end-user.



Suggested Application Scenarios

- Medical surveillance:
 - Vital function monitoring
 - Cardiac arrhythmia or cardiac arrest alert
- Automotive applications:
 - Micro motion and occupancy detection
 - Parking sensor/ distance control sensor/ distance measurement
 - Automatic door/ car hood opening system
 - Seat occupancy recognition/ child presence detection
- Security applications:
 - Detection of intruders
- Rescue applications:
 - Detection of alive people and animals underneath the debris following an earthquake/ building collapse, or avalanche.
- Speed measurement/ traffic monitoring

