# SmartRobotics™

## PRIMARY APPLICATIONS

<table>
<thead>
<tr>
<th>Application</th>
<th>Description</th>
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<tr>
<td>Robotic Vacuum Cleaners</td>
<td>Consumer or enterprise-based cleaning robots that incorporate multiple TDK sensor technologies</td>
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<tr>
<td>Autonomous Mobile Robots</td>
<td>Typically used for surveillance or reconnaissance, AMRs incorporate autonomy with multiple sensor integration.</td>
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<td>Drones</td>
<td>Whether consumer, agricultural, or enterprise, drone applications require all the essential sensor technology found at TDK.</td>
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<td>Service Robots</td>
<td>A modern-day twist on the service industry, robots are now being used for everything from janitors to restaurant servers and food delivery.</td>
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## FEATURED PRODUCTS

### TDK_RoboKit1-DK
- Development Kit
  - Ros 1/2 driver compatible
  - Windows App for Dev Kit data collection
  - Android App for Full Robotic kit BLE data collection
  - MicroRDS (COMING SOON!)
  - Full Robotic package provides everything needed to build a fully functional robotic reference design

### TDK_RoboKit1
- Full Robotic Package
  - The TDK_RoboKit1 Full Robotic Package includes everything found on the TDK_RoboKit1-DK as well as a 3D printed shell with ToF sockets, TDK’s Industrial grade IMU module (IIM-42630), chassis with metal plates, standoffs, wheels and motors, and an ESP32 BLE module.

## PRODUCT CATEGORIES

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>Comprehensive Sensor Enablement</td>
<td>Multiple TDK sensors provided on a single platform</td>
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</table>
  - ICM-42688-P 6-Axis IMU
  - ICP-10111 Barometric Pressure Sensor
  - ICS-43434 Digital I²S MEMS Microphone
  - CH101/201 Ultrasonic Time Of Flight
  - B57861S0103A039 Temperature sensor
  - AK09918C AKM Magnetometer
  - HVC4223F-D2 Embedded Motor Controller
  - IIM-42630 Industrial Module (on Full robotic kit only)

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<tr>
<th>Software Algorithms</th>
<th>Drivers and Algorithms available to support any robotic needs</th>
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  - Cliff Detection
  - Floor Type Detection
  - Obstacle Avoidance
  - Voice Audio Commands
  - Motor Control APIs
  - Sensor Fusion

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<tr>
<th>ROS1 &amp; 2 Compliance &amp; Open Sourced</th>
<th>Compliant with all the necessary robotic community standards</th>
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</table>
  - Ros 1/2 driver compatible
  - Windows App for Dev Kit data collection
  - Android App for Full Robotic kit BLE data collection
  - MicroRDS (COMING SOON!)

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<tr>
<th>“Out Of The Box” Experience</th>
<th>Supports any stage of robotic development from concept to production</th>
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  - Full Robotic package provides everything needed to build a fully functional robotic reference design
  - Development Kit can be used for initial sensor evaluation, algorithm development, or software creation

## ADDITIONAL DETAILS

**Robotics Business Review Innovation Award**

**Winner: Technology, Services, & Research: Product Introduction Category**

“In January 2022, TDK Corporation subsidiary InvenSense announced the TDK RoboKit1, a development platform and reference design for robotics systems. The TDK RoboKit1 board, powered by an ARM Cortex-M7 processor, incorporates a number of sensors, including a 6-axis IMU, a barometric pressure sensor, a magnetometer, digital I²S microphones, a temperature sensor, and ultrasonic Time-of-Flight (ToF) sensors. Also included with the TDK RoboKit1 are software libraries, as well as ROS 1- and ROS 2-compliant drivers.”

— The Robot Report