

TI Robotics Systems Learning Kit

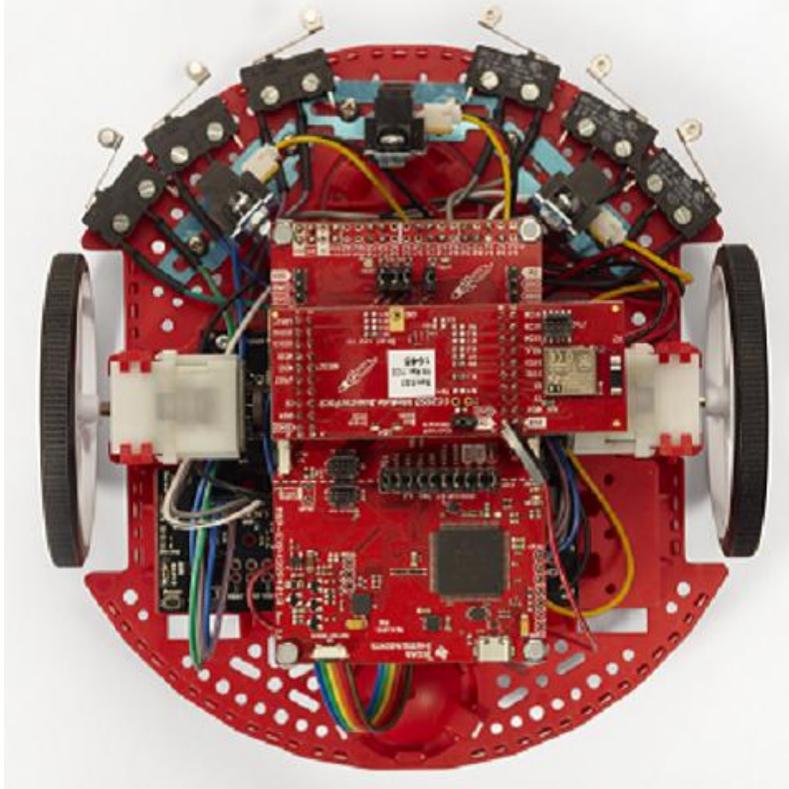


The TI Robotics Systems Learning Kit (TI-RSLK) is a low-cost robotics kit and classroom curriculum, which provide students with a deeper understanding of how electronic system designs work. Developed in collaboration with Dr. Jon Valvano, professor, electrical and computer engineering at The University of Texas at Austin.

The first in its series is the Maze Edition that comes with 20 learning modules covering basic to advanced topics. TI created the robotics learning kit to fill a gap in existing engineering curriculum by introducing comprehensive courseware that addresses the fundamentals of embedded systems and progresses to more advanced applications learning.

- 1. TI-RSLK Basic Kit** – Teaches the foundations of an electronic system and includes:
 - [SimpleLink™ MSP432P401R MCU LaunchPad™ development kit](#)
 - Motor drive and power distribution board
 - Robot chassis, motors, Line IR sensors
 - 50+ other mechanical and electronic components
- 2. TI-RSLK Advanced Kit** – Contains all components found in basic kit, adding wireless communication to enable robot to solve its way through a maze by detecting lines and obstacles. Additional components include:
 - [SimpleLink Bluetooth® low energy CC2650 module BoosterPack™ plug-in module](#)
 - [SimpleLink Wi-Fi® CC3120 wireless network processor BoosterPack plug-in module](#)
 - Distance IR sensors
 - Tachometer
- 3. TI-RSLK Upgrade Kit** – Add-on kit that takes the TI-RSLK from Basic to Advanced

TI-RSLK-Robotics-System-Learning-Kit



<https://training.ti.com/lab-12-video-122-demonstrate-robot-moving-preset-pattern>

TI-RSLK Maze Edition Curriculum

The TI-RSLK Maze Edition curriculum comes with 20 learning modules covering basic to advanced topics. Each module is complete with lecture videos and slides, lab documentation and demonstration videos, quizzes and classroom activities. The TI-RSLK is targeted to teach embedded systems and applications, and can be expanded and used in a variety of engineering classes.

The Curriculum Covers:

- Electrical engineering concepts such as voltage, current, power, and energy
- Microcontroller interfacing with sensors, actuators, and motors, concepts of pulse width modulation, flash ROM, analog to digital conversion, digital to analog conversion, and serial data transmission
- Software design and testing using multithreading, and debugging
- Fundamental theories such as Nyquist, Central Limit and Little's Law
- Building systems using finite state machines (FSM), closed loop control, Bluetooth® low energy, and Internet of Things