Technical sheet

Krypton 6 Robotics kit
What's in the box?

Programmable Logic Controller:
User friendly main control board. This is the brain for every project in this course. The controller manages the program signals from and to each sensor and actuator. It connects to a mobile device through a Wi-Fi connection. It offers a simple UI through an LCD touchscreen.

Main characteristics:
- RJ11 connector pins for 7 sensors, 4 motors, and 1 camera module
- Quad core Cortex-A7 processor @1.3GHz
- 1.6GB storage
- 64KB RAM
- Wi-Fi & Bluetooth modules
- 2.3" LCD touchscreen
- Embedded sensors: Gyroscope, Compass, Microphone.
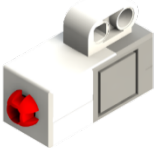- 1500mAh rechargeable Lithium battery

Structural parts:

A total of **1,152** plastic parts are included in this kit. These structural components are meant to be assembled without the need of special tools.
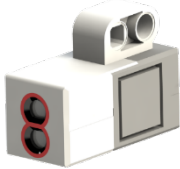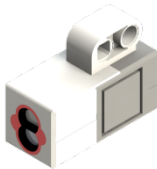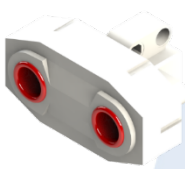
Part list				
Porous beam Black 30mm x20	Porous beam Red 30mm x10	Porous beam Green 30mm x10	Porous beam Yellow 30mm x10	Porous beam Blue 30mm x10
Porous beam 20mm x20	Porous beam Gray 30mm x20	Porous beam gray 70mm x25	Porous beam White 110mm x25	Axle(20mm) x12
Axle (30mm) x12	Axle (40mm) x12	Axle(50mm) x12	Axle (60mm) x12	Axle(80mm) x12
Coupling (90°) x10	Mecanum Wheel x 2	Guide Wheel x4	Coupling(20mm) x10	Marble x2
Bolt(20mm) x283	Bolt(30mm) x120	Bolt(15mm) x40	Axle sleeve x40	Beam U shape x3
Middle A connector x6	Slide bearing x10	Short bolt(2mm) x12	Middle L connector x12	Middle H connector x6
Porous beam 90° x15	Porous beam 126.87° x20	Porous beam 90° x15	Porous beam 126.87° x20	Gray gear #1 x6
Black gear #1 x6	Yellow gear #1 x6	Gray gear #1 x6	Black gear #2 x6	Yellow gear #2 x6

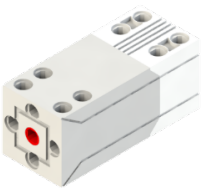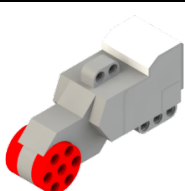|				
Cube x30	Half cube x20	Cube connector x30	Slope cube x10	60° cube x8
Non-slip rubber x50	Rail x80	Rail rim x6	Tire x2	Rim x2
Square beam x10	1# Slab x13	4# Slab x3	Cables x 12	

Sensors

These components are used to collect data from the environment. Each sensor must be connected to the PLC board and be programmed individually. **Total: 24 sensors**.

Sensor list			
Picture	**Name**	**Quantity**	**Function**
-	Compass (embedded)	1	Using the earth's magnetic field, determines the position in which the PLC is facing.
-	Gyroscope (embedded)	1	Determines the acceleration force magnitude in X, Y and Z axis.
-	Microphone (embedded)	1	Records any environmental audio when active.
-	Position (embedded in motor)	5	Determines motor's axis actual position and RPM
	Touch	4	Recalls the current state of the button, either pressed or not.

	Grayscale	8	Analyses the color of an object (how light or dark) to determine its shade of gray.
	Color	1	Determines the color of an object in front of it (red, green, blue, yellow, or white) or the intensity of a light shining upon the sensor. Best reads at 0.5in.
	Ultrasonic	2	Using an ultrasonic soundwave calculates the distance between the sensor and an object in front of it. Best reads from 1 to 25in.
	Camera	1	Takes a picture when activated, which can later be accessed on the controllers storage.

Actuators

These components are used to create motion within an assembly. Each actuator must be connected to the PLC board and be programmed individually. **Total: 8 actuators**

Actuator list			
Picture	**Name**	**Quantity**	**Function**
-	RGB LED (embedded)	1	Individually controllable RGB LED light.
-	Speaker (embedded)	2	Play any sound coming from the PLC board.
	Small motor	3	Creates rotational motion at low torque and high speeds.
	Big motor	2	Creates rotational motion at high torque and low speeds.

Minimum Hardware Requirements

Mobile Device: with Operating Systems iOS 9.3 or later or Android Oreo 8.0 or later. Memory: 8GB Minimum and RAM: 2GB Minimum.

Applications:

Download the following Apps in your device:

- Abilix Krypton Mobile App

This application encloses every functionality the Krypton robotics family has. The app contains introductory activities, a project gallery, interactive 3D assembly manuals, and three different block-based programming environments.

The app is available for iOS and Android users:
Apple AppStore: https://apps.apple.com/mx/app/abilix-krypton-todays-future/id1140118489
Google PlayStore: https://play.google.com/store/apps/details?id=com.partnerx.CRobotgplay

The App Includes 3 programming modules:

- Block-based Programming (Krypton Project Programming)

This programming tool is the easiest way to start programming robotics. The user works in an environment in which there are pre-programmed blocks; each block contains a predefined sequence which makes the robot move in a certain way. In this tool, there is no chance for failure since every block has been previously proven to work. This programming method is recommended for absolute beginners.

- Krypton Scratch Programming

This programming tool uses natural language blocks to program the robot; works just as any other Scratch programming environment. If you are already familiar using Scratch, this tool will fit you best.

- Krypton Chart Programming

This tool follows a flowchart programming scheme. Just as a regular flowchart program in any environment, the program will play from top to bottom following each block's configuration. This is the ideal tool for a more complete and complex project development.