

Sinapse Educational Kit – Technical Catalogue

Version: 1.0

Designed by: Sinapse HQ, Finland.

Product Overview

The Sinapse Educational Kit is an educational platform designed for learners aged 10–15. It offers a fun and engaging way to build, create, and explore the world of STEM. With easy-to-assemble parts and a user-friendly programming environment, students can quickly start designing and programming. The kit encourages creativity, critical thinking, and teamwork, making it an ideal tool for schools, clubs, and home learning.

Key Features

- Educational Focus: Designed for ages 10–15; ideal for team-based projects (dog-robot, rover models)
- Microcontroller: High-performance ESP32-based controller
- Robust Sensor Suite: Includes ultrasonic, infrared, mini PIR, water level, and LDR sensors
- Actuation: Four BO DC motors (200 RPM, <150 mA) and two 180° servo motors
- Power Management: 7.4V, 1800mAh Li-ion battery with onboard 3A DC-to-DC converter and integrated charging circuitry
- Modular Mechanics: Lego-compatible, snap-fit joinery using PPCP (yellow) and ABS (black) plastics
- Programming Environment: Sinapse IDE – a custom visual block-based programming interface with pre-configured libraries

Detailed Specifications



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1. Kit Contents

Component	Quantity
Main Motherboard	1
BO DC Motors	4
Servo Motors	2
Ultrasonic Sensor (HC-SR04)	1
IR Sensors	2
Mini PIR Sensor (HC-SR505)	1
Water Level Sensor	1
LDR Sensor Module	1
RGB LEDs	3
Buzzer	1
Battery Pack (7.4V, 1800mAh Li-ion)	1
USB Cable (Micro-USB)	1
Charger (5V, 1A)	1
Chassis (Dog & Rover models)	2
Female-to-Female Jumper Wires (5 pcs)	1 set
Printed Guidebook	1















