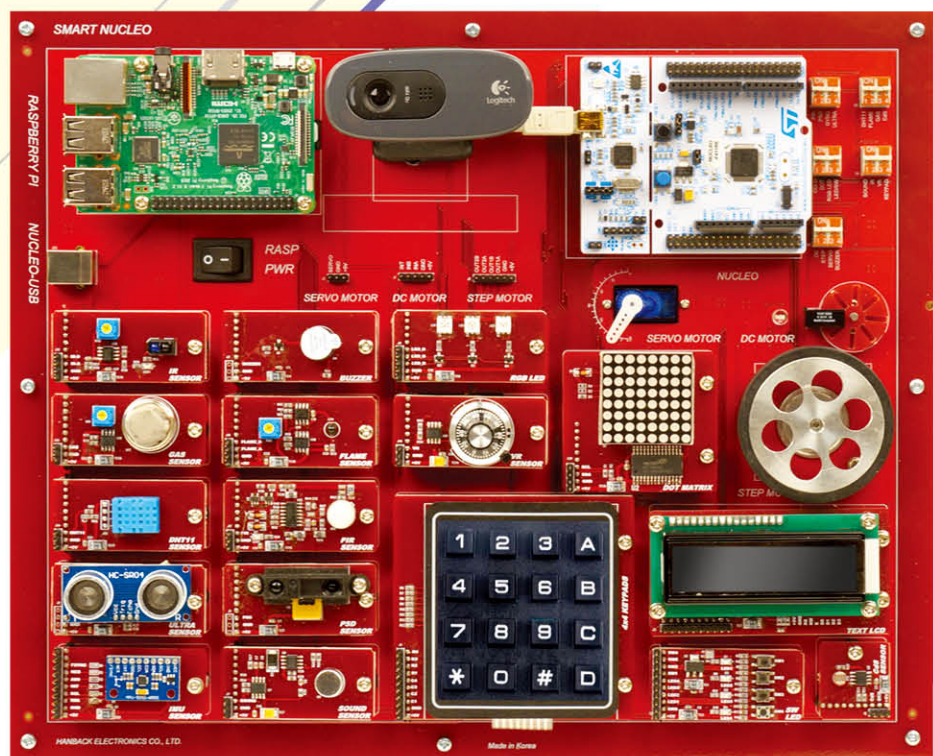


Microprocessor

SMART NUCLEO



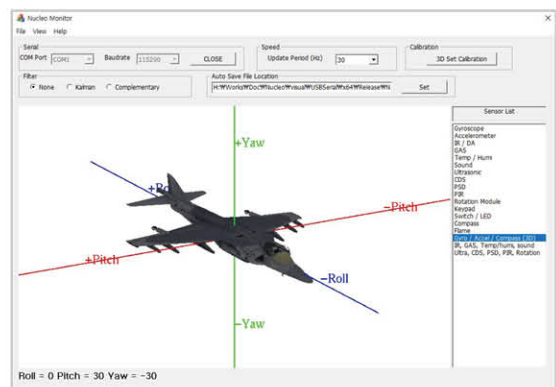
518 Yuseong-daero, Yuseong-Gu, Daejeon 34202, South Korea
TEL. +82-42-610-1111, 1164 (Dir.)
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E mail. support@hanback.co.kr

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SMART NUCLEO

Displays sensor data in the form of graph or 3D airplane

- ## Block Diagram



[3D Display]

Gateway Block

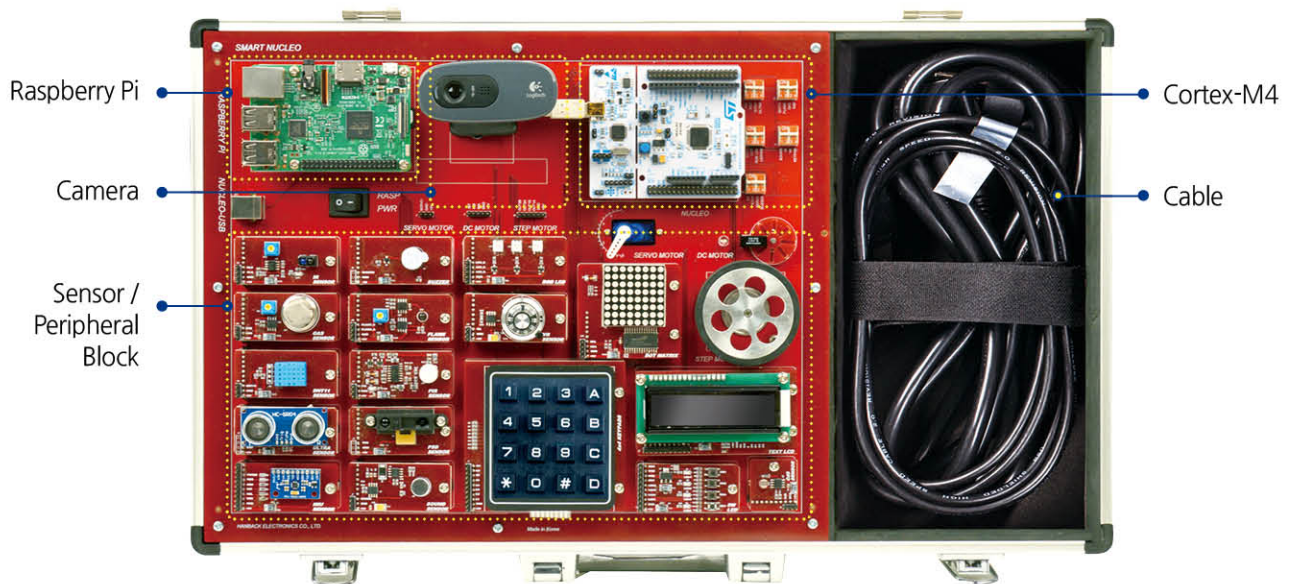
Category	Specification
Chip	Broadcom BCM2837 Soc
Core Architecture	Quad-Core ARM Cortex-A53, 1.2GHz
Memory	1GB LPDDR2
Bluetooth	Bluetooth 4.1 Classic, Bluetooth Low Energy
Networking	10/100 Ethernet, 2.4GHz 802.11n wireless
Power	Micro USB Socket, 5V, 2.5A
TFT LCD	Resolution : 320*480(Pixel), SPI Interface
Camera	Up to 3Mega Pixels, USB Interface

Cortex-M4 Block

Category	Specification
MCU	STM32F411RE, 32bit MCU, Speed : 84MHz, Flash : 512KB, SRAM : 96KB
ADC	10 Channel, 12bit ADC 2.4Mps
Extensions	Arduion Uno Revision 3 connectivity
ETC	On-Board ST-LINK/V2-1 debugger/programmer with SWD connector
	User LED
	Two push buttons : User, Reset
I/O Control	I/O connection control using DIP switch

Application

Category	Parts	Specification	Category	Parts	Specification
Peripheral	SW/LED	Push Switch 4EA, LED 4EA	Sensor	Temperature	2~150 Range, Analog Interface
	Key Pads	4 x 4 Key Pads		Temp/ Humidity	ambient temperature and humidity detection. Digital Interface
	Buzzer	Buzzer 1EA		Ultrasonic	2~400cm Range, Digital Interface
Display	RGB LED	RGB LED 3EA, PWM Control		PSD	10~40cm Range, Analog Interface
	Text LCD	2 line 16 char Text LCD		Sound	Sound Detector
	Dot Matrix	8 x 8 Dot matrix, I ² C Control		PIR	PIR Sensor, Sensor Range 110°
Motor	DC Motor	DC Motor with photointerrupt		GAS	Liquefied gas, Natural gas, coal gas
	Step Motor	Unipolar, 1.8° /step		VR	Variable resistance is used to change the value between 0V and 5V
	Servo Motor	0.22sec/60deg		IR	IR proximity sensor
				Flame	Flame Sensor
				9 axis IMU	Gyro 3 axis, Accelerometer 3 axis, Magn etic 3 axis



Learning 1. IoT with SMART NUCLEO

1. Overview of IoT
2. SMART NUCLEO Configuration
3. Programming with the board
4. Raspberry Pi

Learning2. Android UX/UI with SMART NUCLEO

1. Overview of Android UX/UI
2. Google Material Design
3. Android UX/UI
4. Interacting with the board and Android

