COMPONENTS USED IN CRYSTAL CLEAR ELECTRONICS 2 CURRICULUM

Part name	Value	Parameters	Manufacturer Part No.	Quantity
Resistor	100R	0.6W, 1%, through-hole	MF0207FTE52-100R	10
	1k	0.6W, 1%, through-hole	MF0207FTE52-1K	5
	3.3k	0.6W, 1%, through-hole	MF0207FTE52-3K3	5
	10k	0.6W, 1%, through-hole	MF0207FTE52-10K	5
Potentiometer	10k	Linear, 0.2W, 20%, through-hole	P160KN-0QD15B10K	1
Capacitor	100nF	100V, 10%, through-hole	FG28X7S2A104KRT06	5
	220mF	5.5V, -20%/ +100% , through-hole	ADCH-S05R5SA224WB	1
Diode	Schottky	Vf = 0.5V, Vr = 40V, If.max = 1A, DO-15	SB140	1
Transistor	P-MOSFET	Vdss.max=-55V, Vgs.max=±20V	IRF9Z34NPBF	1
Sensor	NTC temperature sensor	R=10kOhm @25°C, szigetelt	NTCLE400E3103H	1
	Digital temp. sensor	SO-8 package	LM75AD,118	1
	Ambient light sensor		APDS-9300-020	1
	Humidity sensor		HIH8120-021-001	1
Optical devices	LED	Red	HLMP-HG64-VY0DD	5
	OLED display	128x64 pixel, with SSD1306 driver IC, I2C protocol	MDOB128064V2V-WI	1
Wires	Red	1,5m	10982-22-1-2000-004-1-TD	1
	Black	1,5m	10982-22-1-2000-001-1-TD	1
	Green	1,5m	10982-22-1-2000-007-1-TD	1
	Jumper Male / Male		ZW-MM-10	1
	Jumper Male / Female		ZW-MF-10	1
Banana plug	Black		BU-32616-0	1
	Red		BU-32616-2	1
Push button		6 x 6 mm	TS02-66-43-BK-160-LCR-D	5
Motor driver			DRI0002	1
DC Motor		With encoder	FIT0458	1
SD card socket		Micro SD socket, SDIO interface	Adafruit 4682	1
SO-8 / SOIC-8 to DIP-8 breakout board		For digital temperature sensor	ADAFRUIT 1212, PA0173, LCQT-SOIC8-8	1
SOT 23-6 breakout board		For ambient light sensor	ADAFRUIT 1230, LCQT-SOT23-6	1
DC connector adapter			ADAFRUIT 368	1
STM32 NUCLEO-F446ZE developer panel			NUCLEO-F446ZE	1

OTHER TOOLS USED IN CRYSTAL CLEAR ELECTRONICS 2 CURRICULUM

Part name	Comment	Manufacturer Part No.	Quantity
Breadboard		VTBB2N	1
AC/DC power supply – 5VDC		VFL05US050-EU-JA	1
Multimeter		72-13440	1

Meaning of colors

- Incompatible with example codes
- Compatible with example codes
- Compatible by adding external LEDs, buttons
- Additional part that can be bought domestically/abroad is required

Types of accessory devices

- OLED display - SSD1306
- Temperature sensor - LM75
- Humidity sensor - HIH8120
- Light sensor - APDS9300
- NTC resistor - 10 kΩ
- Motor controller IC - BD621xxx
- DC motor - FIT0458

Possible collection 1:

- 32F469IDISCOVERY
- 5 buttons
- OLED display
- Light sensor
- NTC resistor
- Humidity sensor
- Temperature sensor
- DC motor
- Motor controller (replacement)
- 5V Power supply
- Power supply connector (recommended for motor controller)

Possible collection 2:

- NUCLEO-F446ZE
- 5 buttons
- OLED display
- Light sensor
- NTC resistor
- Humidity sensor
- Temperature sensor
- DC motor
- Motor controller (replacement)
- 5V Power supply
- Power supply connector (recommended for motor controller)
- External SD card socket with SDIO interface

Note: octopart.com helps you to list the distributor companies where the accesories are available.

Chapter Nr.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
NUCLEO-F302R8																								
NUCLEO-F303K8																								
NUCLEO-F303RE																								
NUCLEO-F303ZE																								
NUCLEO-F334R8																								
NUCLEO-F401RE																								
NUCLEO-F410RB																								
NUCLEO-F411RE																								
NUCLEO-F412ZG																								
NUCLEO-F413ZH																								
NUCLEO-F429ZI																								
NUCLEO-F439ZI																								
NUCLEO-F446RE																								
NUCLEO-F446ZE																								
NUCLEO-F722ZE																								
NUCLEO-F746ZG																								
NUCLEO-F756ZG																								
NUCLEO-F767ZI																								
32F3348DISCOVERY																								
32F411EDISCOVERY																								
32F412GDISCOVERY																								
32F413HDISCOVERY																								
32F429IDISCOVERY																								
32F469IDISCOVERY																								
32F723EDISCOVERY																								
32F746GDISCOVERY																								
32F769IDISCOVERY																								
STM32F3DISCOVERY																								
STM32F4DISCOVERY																								
STM32F7508-DK																								
Required additional devices								Light sensor	OLED display				OLED display, Light sensor, Temperature sensor, Humidity sensor	OLED display, NTC resistor		OLED display	Motor controller		Motor controller, OLED display			OLED display		OLED display, NTC, Motor controller
Reason of incompatibility					Not enough LEDs	Not enough LEDs	Not enough LEDs or buttons	Not enough LEDs	Not enough LEDs, buttons, switches	Not enough buttons, or no USB OTG			Not enough LEDs			Not enough buttons	Not enough buttons, motor controller		Not enough buttons, motor controller			Not enough LEDs	No SD card or few LEDs	No SD card or few LEDs
Recommendation					Use external LEDs	Use external LEDs	Use external LEDs and buttons	Use external LEDs	Use external LEDs and buttons				Use external LEDs			Use external buttons	Use external buttons					Use external LEDs	Use external SD card socket with SDIO interface	Use external LEDs, SD card socket with SDIO interface