

Class 1MCT1
 First Name: Freya
 Name De Muynck
 Project Name : Book conservation chamber
 Assembly Revision : 2
 Approval Date : 08-Mar-21
 Part Count : 44
 Total Cost : € 199



Part #	Part Name	Description	Revision	Qty	Supplier
1	Raspberry Pi 4 model b	Raspberry Pi to control the entire system	1	1	https://be.farnell.com/raspberry-pi/rpi4-modbp-2gb/raspberry-pi-4-model-b-2gb/dp/3051886?CMP=KNC-GBE-GEN-KWL-PDP-NON-PUR-
2	Raspberry Pi USB-C 3A voeding	Power supply for Raspberry PI	1	1	https://www.sossolutions.nl/originele-raspberry-pi-foundation-usb-c-3a-voeding-zwart
3	Micro SD card 16 GB	Memorycard for the Pi	1	1	https://www.sossolutions.nl/16gb-sandisk-ultra-micro-sdhc-80mb-s
4	Raspberry Pi T-cobbler	Breakout board for Raspberry Pi	1	1	https://www.reichelt.com/be/nl/raspberry-pi-t-cobbler-plus-rpi-t-cobbler-p-p235529.html?PROVID=2812

5	3x4 Membrane matrix keypad	To give the entry code	1	1	https://www.otronic.nl/a-62567464/schakelaars/membraan-3x4-matrix-keypad-switch/?gclid=Ci0KCOiAs5eCBhCBAP1s
6	Servo SG90 Mini 180 graden	To open/close the lock	1	1	https://www.otronic.nl/a-60660463/elektromotoren/servo-sg90-mini-180-graden/?gclid=Ci0KCOiAs5eCBhCBAP1s
7	RFID reader (RC522)	To know which book is taken in/out of the chamber	1	1	https://www.otronic.nl/a-60634400/sensors/rfid-rc522-nfc-kit-mfr522-s50-mifare-incl-rfid-fudan-card-on-key
8	RFID stickers	To make the books identifiable	1	1	https://www.aliexpress.com/item/32986752771.html?spm=2114.12010612.8148356.2.cfa7a000ZzdfG7
9	DHT11 Temperature and Humidity Module	To check the temperature/humidity	1	1	https://www.otronic.nl/a-61043344/sensors/temperatuur-en-luchtvochtigheidssensor-in-een-dht11/
10	LDR light dependent resistor	To check the amount of light	1	1	https://www.hobbyelectronica.nl/product/ldr-light-dependent-resistor/
11	ESP32	Reads the LDR value & controls the servo	2	1	https://www.otronic.nl/a-59613972/esp32/esp32-wroom-4mb-devkit-v1-board-met-wifi-bluetooth-en-dual-core-processor/?gclid=CjwKCAjw2ZaGBhBoEi
12	momentary switch button	change lock state & shutdown	2	2	https://www.otronic.nl/a-61703874/schakelaars/drukknop-moment-14x20-rond-gat-12mm-wit/
13	MDF 244x122 cm 15 mm	To create the casing	2	1	local hardware store
14	MDF 50x100 cm 5 mm	To create the casing	2	1	local hardware store

15	Transparent PS sheet 100x50 cm 2,5mm	To make the door	2	1	local hardware store
16	piano hinge	To create the casing	2	1	local hardware store
17	doorknob	To create the casing	2	1	local hardware store
18	hook	To create the casing	2	1	local hardware store
19	chain	attach the lid to the casing	2	1	local hardware store
20	floral wire 0,65mm	To create the casing	2	1	local hardware store
21	wood lacquer	To paint the casing	2	1	local hardware store
22	screws 3x12mm	To attach the wood together	2	1	local hardware store
23	screws 3,5x30mm	To attach the wood together	2	1	local hardware store
24	wooden plank 15x15 mm 270 cm	To make the door	2	1	local hardware store
25	USB A male to Micro-B male	connecting ESP32	2	1	https://www.onlinekabelshop.nl/eenvoudig
26	solderless breadboard 830 points	connecting the components	2	1	https://www.gotron.be/meten-solderen/solderen/installeren/breadboard/
27	solderless breadboard 170 points	connecting the components	2	3	https://www.otronic.nl/a-
28	10 k Ω resistor	needed in circuit	2	1	https://www.conrad.be/p/yageo-cfr-25jt-52-
29	470 Ω resistor	needed in circuit	2	7	https://www.otronic.nl/a-
30	diode	fan control	2	1	https://www.hobbyelectronica.nl/product/1
31	PCF8574	control lcd	2	1	https://benl.rs-online.com/web/p/io-
32	potentiometer	control contrast lcd	2	1	https://www.conrad.be/p/potentiometer-
33	breadboard power supply	power for components	2	1	https://www.otronic.nl/a-
34	npn transistor 2N2222a	fan control	2	1	https://csd-
35	5V brushless fan	cooling of the chamber	2	1	https://www.conrad.be/p/actieve-ventilator-

Total

44



also available from	Units	Unit Cost	Max Cost	Real Cost
https://www.sossolutions.nl/raspberry-pi-4-model-b-2gb?utm_source=tweakers&utm_medium=prijsvergelijking&	1	€ 37,19	€ 37,19	€ 37,19
https://www.digikey.be/product-detail/en/raspberry-pi-(trading)-ltd/RPI%2520USB-C%2520POWER%2520SUP	1	€ 10,95	€ 10,95	€ 10,95
https://www.bol.com/nl/p/sandisk-ultra-micro-sdhc-16gb-uhci-a1-met-adapter/0200000080737250/	1	€ 7,99	€ 7,99	€ 7,99
https://www.adafruit.com/product/2028	1	€ 3,91	€ 3,91	€ 3,91

https://www.hobbyelectronica.nl/product/4x3-membrane-matrix-keypad/	1	€	1,49	€	1,49	€	1,49
https://www.hobbyelectronica.nl/product/sg90-digital-servo-360-graden/2aclid=Ci0KCOiAs5e	1	€	2,89	€	2,89	€	2,89
https://www.amazon.nl/RETYLY-MFRC-522-Module-Inductie-Sensor/dp/B07OXY8P94/ref=mp2?ref=sr_1_112_mk_nl_N	1	€	3,99	€	3,99	€	3,99
https://www.amazon.nl/peng-NTAG213-Sticker-RFID-tag-toegangscontrole/dp/B0863L90P2/ref=sr_1_112_mk_nl_N	1	€	6,41	€	6,41	€	6,41
https://www.hobbyelectronica.nl/product/dht11/	1	€	2,95	€	2,95	€	2,95
https://webshop.domoticx.nl/index.php?route=product/product&path=294&product_id=761	1	€	0,25	€	0,25	€	0,25
https://www.bol.com/nl/p/esp32-devkit-v1-4mb-240mhz-dual-core-otronic-arduino-ide-development-board-wifi-bluetooth/9300000002323684	1	€	9,49	€	9,49	€	9,49
https://benl.rs-online.com/web/p/push-button-switches/8919845/	1	€	0,99	€	1,98	€	1,98
https://www.hubo.be/nl/p/mdf-plaat-244x122-cm-15mm/13085.html	1	€	28,97	€	28,97	€	28,97
https://www.modelbouwbaillien.be/shop/product/is24250-mdf-plaat-5-0-mm-50-x-	1	€	8,95	€	8,95	€	8,95

https://www.hubo.be/nl/p/scala-vlakke-plaat-100x50-cm-2-5mm-polystyreen-dschap-	1	€	12,59	€	12,59	€	12,59
dschap-installatie/ijzerwaren/meubelb	1	€	3,49	€	3,49	€	3,49
https://www.brico.be/nl/qeree	1	€	3,99	€	3,99	€	3,99
https://www.gamma.be/nl/ass	1	€	2,09	€	2,09	€	2,09
https://www.hubo.be/nl/p/sam-product/2100088/2100054/BI	1	€	3,99	€	3,99	€	3,99
https://www.action.com/nl-	1	€	1,35	€	1,35	€	1,35
https://www.action.com/nl-	1	€	6,99	€	6,99	€	6,99
https://www.gamma.be/nl/ass	1	€	5,79	€	5,79	€	5,79
https://www.gamma.be/nl/ass	1	€	5,29	€	5,29	€	5,29
https://www.karwei.nl/assorti	1	€	3,99	€	3,99	€	3,99
https://www.amazon.nl/Power	1	€	4,99	€	4,99	€	4,99
https://www.conrad.be/p/17177	1	€	6,75	€	6,75	€	6,75
breadboard-totaal-aantal-	1	€	6,75	€	6,75	€	6,75
https://www.conrad.be/p/tru-	1	€	0,99	€	2,97	€	2,97
https://www.otronic.nl/a-	1	€	0,05	€	0,05	€	0,05
https://www.sossolutions.nl/10-	1	€	0,05	€	0,35	€	0,35
https://www.conrad.be/p/visha	1	€	0,09	€	0,09	€	0,09
https://www.reichelt.com/be/nl	1	€	1,97	€	1,97	€	1,97
https://www.hobbyelectronica.	1	€	0,75	€	0,75	€	0,75
https://www.hobbyelectronica.	1	€	1,95	€	1,95	€	1,95
ils/2n2222a-dio/npn-tht-	1	€	0,07	€	0,07	€	0,07
https://thepihut.com/products/	1	€	2,53	€	2,53	€	2,53

€ 199,44 € 199,44