

Class	MCT-2
First Name:	Maarten
Name	Schaep
Project Name :	Smart Desk
Assembly Revision :	1
Approval Date :	
Part Count :	18
Total Cost :	€637

Part #	Part Name	Description	Revision	Qty
1	Raspberry Pi 5 4GB RAM Model	Raspberry pi where everything will be hosted on (webserver, database server) and all sensors connected to		1
2	Micro sd card	Memory card for the Raspberry Pi		1
3	Raspberry Pi Power supply 5V	Power supply for the Raspberry Pi		1
4	Servo motor	Servo motors to press the buttons of the desk		2
5	Passive buzzer	Buzzer to remind the user to take a break or switch from sitting to standing or vice versa		1
6	RFID- sensor	Sensor to read RFID tags to save data to the correct user.		1
7	Ultrasonic sensor	Sensor to detect if a person is sitting/standing at the desk		1
8	Distance sensor (Time of Flight v15310x)	Sensor to measure distance between the ground and the desk		1
9	Power supply 3.3V	Power supply for the servo motors		1
10	AC/DC Adaptor 12V	Adaptor for breadbord power supply		1

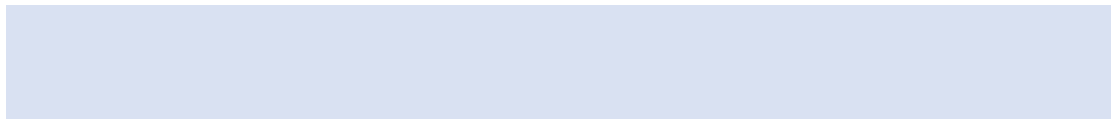
11	OLED display	Display to show the IP address and data for how long the person has been sitting for	1
12	Desk	Desk to mount the device on (with controls to change the height).	1
13	Breadboard	Breadboard to connect all electronica together.	2
14	Arduino with usb-a to usb-b cable	Arduino to connect to the OLED display	1
15	Level shifter	Level shifter to convert 5V of Arduino to 3.3V of OLED	1
16	Wires, button and resistors	Wires and resistors to connect everything, a button to shutdown the device	1
17	Screws		
18	hinges		
19	angle brackets		
20	Wood (MDF)	Materials for the enclosure	
Total			18

Picture of Assembly

(picture can only be added with END delivery of product)

Supplier	also available from	Units	Unit Cost
https://www.kiwi-electronics.com/nl/raspberry-pi-boards-behuizingen-uitbreidingen-en-accessoires-50/raspberry-pi-boards-262/raspberry-pi-50	https://www.raspberrystore.nl/PrestaShop/nl/raspberry-pi-5/511-raspberry-pi-27w-usb-c-https://www.conrad.be/nl/prd-components-tc-9202060-piezo-signaalgenerator-geluidsontwikkeling-85-dh-scanning-5-v-de-centru-4-stuk-a-https://www.otronic.nl/nl/rfid-rc522-nfc-kit-mfr522-s50-mifare-incl-rfid-fu.html	1	€ 70.17
https://www.bol.com/be/nl/p/micro-sd-kaart-goodram-m1aa-zwart-microsd-16gb-cl-10-uhs-i-adapter-microsdhc/0000000148004500/	https://www.conrad.be/nl/prd-components-tc-9202060-piezo-signaalgenerator-geluidsontwikkeling-85-dh-scanning-5-v-de-centru-4-stuk-a-https://www.otronic.nl/nl/rfid-rc522-nfc-kit-mfr522-s50-mifare-incl-rfid-fu.html	1	€ 10.40
https://www.kiwi-electronics.com/nl/raspberry-pi-27w-usb-c-power-supply-zwart-eu-11582	https://www.raspberrystore.nl/PrestaShop/nl/raspberry-pi-5/511-raspberry-pi-27w-usb-c-power-supply-zwart-eu-11582	1	€ 13.90
https://www.otronic.nl/nl/servo-sg90-micro-180-graden.html	https://www.gotron.be/analog-e-miniservo-9gram.html	2	€ 3.99
https://www.conrad.be/nl/p/tru-components-tc-9202060-piezo-signaalgenerator-geluidsontwikkeling-85-dh-scanning-5-v-de-centru-4-stuk-a-https://www.otronic.nl/nl/rfid-rc522-nfc-kit-mfr522-s50-mifare-incl-rfid-fu.html	https://be.farnell.com/en-BE/multicomp-pro/mckpt-g1340-3917/piezo-buzzer-90db-100cm-https://www.conrad.be/nl/prd-components-tc-9927144-schrijf-en-leesmodule-1-stuk-s-2481786.html	1	€ 0.90
https://www.otronic.nl/nl/rfid-rc522-nfc-kit-mfr522-s50-mifare-incl-rfid-fu.html	https://www.conrad.be/nl/prd-components-tc-9927144-schrijf-en-leesmodule-1-stuk-s-2481786.html	1	€ 2.80
https://www.otronic.nl/nl/hc-sr04-ultrasonische-afstandssensor.html	https://www.bol.com/be/nl/p/azdelivery-hc-sr04-ultrasone-module-rangefinder-sensor-compatibel-met-arduino-en-https://www.gotron.be/vl53l0x-time-of-flight-sensor.html	1	€ 2.19
https://www.otronic.nl/nl/tof200c-vl53l0x-afstandssensor-time-of-flight-zeer.html	https://www.gotron.be/vl53l0x-time-of-flight-sensor.html	1	€ 11.49
https://www.otronic.nl/nl/breadboard-voeding-converter-naar-33v-en-5v.html	https://www.kiwi-electronics.com/nl/breadboard-stroomvoorziening-3v3-5v-2046	1	€ 2.49
https://www.otronic.nl/nl/voeding-12v-2a-adapter-55mm-x-25mm-jack.html	https://www.kiwi-electronics.com/nl/voedingsadapter-12v-1a-12w-5-5x2-4mm-de-plus-2400	1	€ 6.99

https://www.otronic.nl/nl/24-inch-oled-display-128x64-i2c-ssd1309-33v.html	https://www.hobbyelectronica.nl/product/oled-2-4-inch-wit-ssd1309-128-64-i2c/	1	€	21.95
https://www.ikea.com/be/en/p/mittzon-desk-sit-stand-electric-oak-veneer-black-s29530235/	https://www.coolblue.be/nl/product/884653/euroseats-elektrisch-zit-sta-bureau-160-x-80-ruimte-spaar.html	1	€	449.00
https://www.amazon.com.be/-/en/MMOBIEL-Breadboard-Prototype-Seamless-Circuit/dp/B0CPJRSLDX/	https://thepihut.com/products/full-sized-breadboard	2	€	5.99
https://www.otronic.nl/nl/uno-r3-arduino-compatible-incl-usb-kabel-en-header.html	https://store.arduino.cc/products/arduino-uno-rev3	1	€	7.49
https://www.otronic.nl/nl/4-kanaals-logic-voltage-level-converter.html	https://www.amazon.com.be/-/en/Channel-Logic-Converter-Module-Headers/dp/B08TTPBWGW/	1	€	0.99
https://www.amazon.com.be/-/en/Electronic-Components-Breadboard-Resistor-Transistor/dp/B08DX9Q49J/	https://www.amazon.com.be/-/en/Electrical-Electronic-Resistors-Assortment-Compliant/dp/B00C76XGDE	1	€	15.99



object!)

Max Cost	Real Cost
€ 70.17	
€ 10.40	
€ 13.90	
€ 7.98	
€ 0.90	
€ 2.80	
€ 2.19	
€ 11.49	
€ 2.49	
€ 6.99	

€ 21.95

€ 449.00

€ 11.98

€ 7.49

€ 0.99

€ 15.99

€ -

€ -

€ -

€ -

€ 636.71

Revision History

Whenever there are things that change in the original BOM you note this down here!

Project Name :

Revision	Revision Summary	Approval Date
1	Updated BOM after enclosure is done	

Bill of Materials for LEGO® Design

EXAMPLE on how to list parts of your project

Assembly Name : Mini X-Wing™	
Assembly Number : Custom	
Assembly Revision :	
Approval Date :	
Pieces :	46
Total Cost :	\$5.85

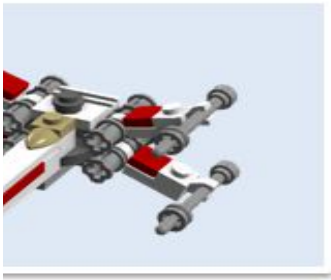


Category	Part #	Elem ID	Part Name	Color	Qty	Supplier
Bricks, Sloping	50746	4504369	ROOF TILE 1X1X2/3, ABS	1 - White	1	nephew
Plates	3024	302401	PLATE 1X1	1 - White	1	nephew
Plates	3023	302301	PLATE 1X2	1 - White	2	nephew
Plates	3023	4211398	PLATE 1X2	194 - Medium Stone Grey	1	nephew
Plates	3794	379401	PLATE 1X2 W. 1 KNOB	1 - White	1	nephew
Plates	3623	362301	PLATE 1X3	1 - White	1	nephew
Plates	3623	362321	PLATE 1X3	21 - Bright Red	1	nephew
Plates	94148	302201	PLATE 2X2	1 - White	1	nephew
Plates, Special	6141	4210633	PLATE 1X1 ROUND	199 - Dark Stone Grey	1	nephew
Plates, Special	3070	307021	FLAT TILE 1X1	21 - Bright Red	4	nephew

Plates, Special	2412	241201	RADIATOR GRILLE 1X2	1 - White	1	nephew
Plates, Special	6019	4538353	PLATE 1X1 W/HOLDER VERTICAL	1 - White	4	nephew
Plates, Special	2431	4558168	FLAT TILE 1X4	1 - White	1	nephew
Plates, Special	63868	4535737	PLATE 2X1 W/HOLDER,VERTICAL	1 - White	4	nephew
Plates, Special	2540	4211632	PLATE 1X2 W. STICK	194 - Medium Stone Grey	4	nephew
Plates, Special	3176	4225733	COUPLING PLATE 2X2	199 - Dark Stone Grey	1	nephew
Bricks, Special	49668	4224793	PLATE 1X1 W/TOOTH	5 - Brick Yellow	1	nephew
Technic	32123	4211573	1/2 BUSH	194 - Medium Stone Grey	4	nephew
Technic	6590	4211622	BUSH FOR CROSS AXLE	194 - Medium Stone Grey	8	nephew
Accessories	3957	4211473	STICK/AERIAL	194 - Medium Stone Grey	4	nephew

Total

46



Alternative available from	Action?	Units	Picture	Unit Cost	max Cost	Real Cost
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set		each		\$ 0.10	\$ 0.10	\$ 0.10
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set		each		\$ 0.10	\$ 0.10	\$ 0.10
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set		each		\$ 0.10	\$ 0.20	\$ 0.20
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set		each		\$ 0.10	\$ 0.10	\$ 0.10
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set		each		\$ 0.10	\$ 0.10	\$ 0.10
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set		each		\$ 0.10	\$ 0.10	\$ 0.10
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set		each		\$ 0.10	\$ 0.10	\$ 0.10
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set		each		\$ 0.15	\$ 0.15	\$ 0.15
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set		each		\$ 0.10	\$ 0.10	\$ 0.10
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set		each		\$ 0.10	\$ 0.40	\$ 0.40

4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set	each		\$ 0.10	\$ 0.10	\$ 0.10
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set	each		\$ 0.15	\$ 0.60	\$ 0.60
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set	each		\$ 0.20	\$ 0.20	\$ 0.20
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set	each		\$ 0.15	\$ 0.60	\$ 0.60
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set	each		\$ 0.15	\$ 0.60	\$ 0.60
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set	each		\$ 0.20	\$ 0.20	\$ 0.20
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set	each		\$ 0.10	\$ 0.10	\$ 0.10
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set	each		\$ 0.10	\$ 0.40	\$ 0.40
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set	each		\$ 0.15	\$ 1.20	\$ 1.20
4500069: Plate 1X2 W. 1 Knob Brickset: LEGO set	each		\$ 0.10	\$ 0.40	\$ 0.40
				\$ 5.85	\$ 5.85