APRESENTAÇÃO PIC

3ª Reunião

WEBSITE

- https://forestfiredetection.online

LISTA DE MATERIAL

Lista de material PIC

Orçamento máximo		300,00 €			300,00 €
Custo total		223,39 €			223,39 €
Está abaixo do orçamento por		76,61 €			

Item	Descrição	Custo	Qtd.	Montante	Notas
Câmara térmica	MLX90640 Thermal Camera Breakout	78,94 €	2	157,88 €	https://www.digikey.pt/pt/products/detail/pimoroni-ltd/PIM365/9606191?utm_adgroup=&utm_source=google&utm_medium=cpc&utm_campaign=PMax_Product_All%20Products&utm_term=&produc
ESP32	ESP32 2.4GHz Dual-Mode WiFi and Bluetooth Development Board	12,18 €	3	36,54 €	https://www.ptrobotics.com/wifi/7074-esp32-24ghz-dual-mode-wifi-and-bluetooth-development-board.html
Breadboard		3,69 €	1	3,69 €	https://www.ptrobotics.com/breadboards/3090-breadboard-400-points-branco.html
Jumper Wires	Connected 6" M/M Pack of 20	3,08 €	1	3,08 €	https://www.ptrobotics.com/jumper-wires/4103-jumper-wires-connected-6-m-m-pack-of-20.html
Socket 5pin	PCB Socket 5Pin Single Row	0,18 €	2	0,36 €	https://www.ptrobotics.com/headers-e-sockets/3280-pcb-socket-5pin-single-row.html
Jumper Wires	20cm F/F Pack of 10 Random Color	2,71 €	1	2,71 €	https://www.ptrobotics.com/jumper-wires/2610-jumper-wires-premium-20cm-f-f-pack-of-10-random-color.html
Computador				0,00 €	
Kit de soldadura				0,00 €	
Pilha	9V	9,90 €	1	9,90 €	https://www.digitfoto.pt/VARTA-Pilha-Lithium-9V-rVARTA6122.html
Regulador tensão		9,23 €	1	9,23 €	dc-adjustable-boost-step-up-converter-38-32v-to-125-35v-w-led-
Total				223,39 €	

ORÇAMENTO PIC

Orçamento PIC

Orçamento máximo	300,00 €	300,00 €
Custo total	223,39 €	223,39 €

Está abaixo do orçamento por	76,61 €

Item	Descrição	Custo	Qtd.	Montante	Notas
Câmara térmica	MLX90640 Thermal Camera Breakout	78,94 €	2	157,88 €	https://www.digikey.pt/pt/products/detail/pimoroni-ltd/PIM365/9606191?utm_adgroup=&utm_source=google&utm_medium=cpc&utm_campaign=PMax_Product_All%20Products&utm_term=&produc
ESP32	ESP32 2.4GHz Dual-Mode WiFi and Bluetooth Development Board	12,18 €	3	36,54 €	https://www.ptrobotics.com/wifi/7074-esp32-24ghz-dual-mode-wifi-and-bluetooth-development-board.html
Breadbo[Série2 Ponto 2 Valor: 300,00 €]		3,69 €	1	3,69 €	https://www.ptrobotics.com/breadboards/3090-breadboard-400-points-branco.html
Jumper Wires	d 6" M/M Pack of 20	3,08 €	1	3,08 €	https://www.ptrobotics.com/jumper-wires/4103-jumper-wires-connected-6-m-m-pack-of-20.html
Socket 5pin	PCB Socket 5Pin Single Row	0,18 €	2	0,36 €	https://www.ptrobotics.com/headers-e-sockets/3260-pcb-socket-5pin-single-row.html
Kit de soldadura					
Jumper Wires	20cm F/F Pack of 10 Random Color	2,71 €	1	2,71 €	https://www.ptrobotics.com/jumper-wires/2610-jumper-wires-premium-20cm-f-f-pack-of-10-random-color.html
Pilha	9V	9,90 €	1	9,90 €	https://www.digitfoto.pt/VARTA-Pilha-Lithium-9V-rVARTA6122.html
Regulador tensão		9,23 €	1	9,23 €	dc-adjustable-boost-step-up-converter-38-32v-to-125-35v-w-led-
Total				223,39 €	

PROVA DE CONCEITO

Comunicação ESP32	Taxa de dados	Frequência MHz	Poder de transmissão	Sensibilidade recetor (dBm)
Wi-Fi 11n,HT20	150,0 Mbps	2448	13 dBm	-93
Wi-Fi 11n,HT40	300,0 Mbps	2448	13 dBm	-90
Wi-fi 11b, 11 Mbps	11b, 11 Mbps	2448	19.5 dBm	−88

MLX90640	Taxa de atualização(fps)	Total Pixeis	Bits por pixel	Total bits
câmara térmica	64	768	16	12288
	Total Transmissão de bps	Mbps	Consumo(mA)	Peso(g)
	786432	0,786432	20	4

Resumo				
Prova de conceito	Transmissão de dados(Mbps)	Autonomia(h)		
ESP32	11	16		
MLX90640	0,786432	16		
Drone	Tempo máximo de voo	Alcance máximo	Peso	peso componentes
DJI Mavic 3 Classic	46 minutos	30km	895g	140,3

PROJETO IDEAL

	Peso máximo suportado (kg)	Peso (kg)	Distância máxima(km)	Tempo máximo (h)
Drone	30		16	6
Câmara		20		
Transmissor		0.2 (sem antenas)		
Bateria		6.5		

Image Sensor	InSb Cooled Thermal Imager, 30Hz
Resolution	640×512
Pixel Pitch	15µm
Lens	19-275mm Continuous Zoom
Focus	Motorized Autofocus
Field of View	28.4º - 2.0º Horizontal FOV
Pixels Per Meter	18.3ppm
Image Optimizations	AGC, EIS, Denoise
Digital Zoom	4X Digital Zoom
Spectral Range	3000-5000nm
Thermal Sensitivity	25mK

	Frequência (MHz)	Tipo de transmissão	Distância máxima (km)
Transmissor	800 / 1400 / 2400	LTE wireless communication	17