

Cost Estimates

Please give detailed calculations and estimates of the overall cost of your proposed design below. Take care to include person-hour estimates for your software, board production and debugging, as well as your components and consumables. You should also estimate the production cost of your final unit (you may assume a large quantity are to be produced), the market price and determine how many need to be sold to be profitable.

Person hours:

Approx 22 hours per person per week

2 weeks

$8 \times 2 \times 22 = 352$ hours total dev

£100 per hour

$100 \times 352 = £35,200$

Development overheads: £100,000

Conformance testing: £2000

Total costs before components: £137,200

Development component costs in total: £110.88

STM32 Nucleo-32 STM32L432KC Dev. Board	1	£8.32
MCP3301-CI/P Analogue to Digital Converter	4	£7.00
1MS1T1B5M1QE Toggle Switch	1	£1.69
MCP1711T-33I/OT 3.3V LDO	1	£0.24
Alitove 100 pcs ws2812B addressable LED pixel light rgb 5V DC	1	£17.99
RS Pro Power Bank	1	£17.89
LVM358 Opamps	4	£2.24
MCP1501T-33E/CHY 3.3V References	4	£2.41
MAX446EXK+T Microphone Preamp	4	£1.28
AOM-6545P-R Microphone	4	£5.08
Raspberry Pi 3	1	£35
Micro SD Card for Pi	1	£6
Perfboard, wire, and passives	N/A	£4
Case	N/A	£1

Total Development costs: £13,7310.9

The cost of manufacture of the case could be cut by quite a margin at volume using either injection moulding or vacuum forming. The button on the roof of the case isn't a production ready solution but given access to other suppliers this could be changed easily.

We would source the broadcom chip used in the raspberry pi along with only the necessary peripherals. Everything would be mounted to a single PCB which would greatly decrease manufacturing costs thanks to automated assembly.

The battery pack is very much a prototyping solution. If mass produced IP could be sourced for implementation on the PCB.