

Mobile Phone Detector based on Op Amp

Alfaifi, Ammar

KFUPM

December 11, 2022



Contents

What's all about?

Design & Implementaion

Limitations

What's Next ?

Introduction

Concept and Background



What's all about?

Problem



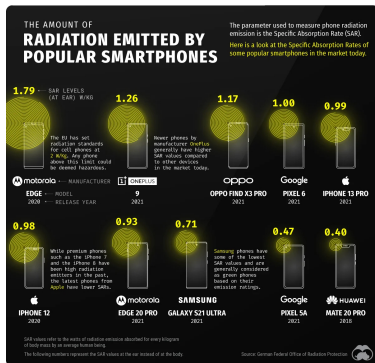
- Mobile phones are great tools, but they are bnned in some places.
- Detecting phones being around is important.
- Providing easy-to-use tools to detect phones.

What's Being Detected ?

Key Point

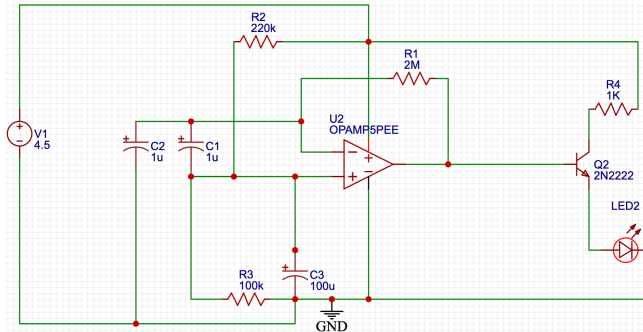
Almost all mobile phones emit EM radiation.

GSM, 2G, Searching for network, or SMS ~ 800 MHz



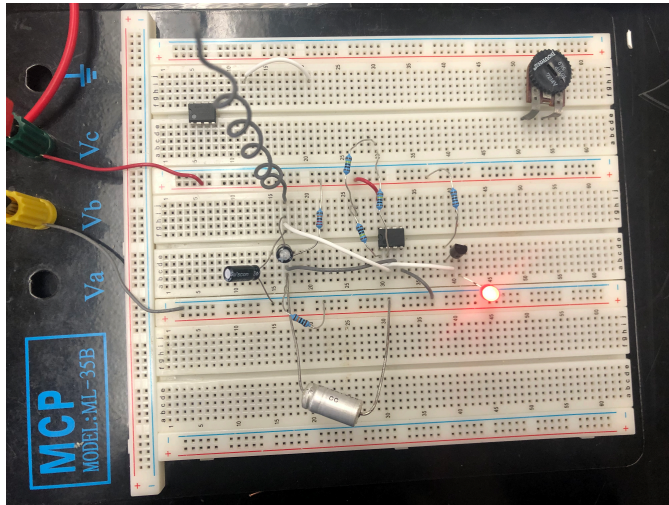
Design & Implementaion

Circuit Diagram



- LM358P Op Amp
- NPN Transistor
- LED & Buzzer
- Capacitors and resistors

In-Lab Testing



A Quick Demo




Limitations

Limitations

- Very small coverage circle.
- Requires antenna, and more tuning for is.
- Radiation-free workplace.
- Such circuits cannot be simulated.

What's Next ?

What's Next ?


Add gerber file

OR

Layers

1246

Dimensions

100 X 100 mm


Quantity

5

Instant Quote

News: Dec 2, 2022 JLCPCB High-precision Multi-layer PCB Extended L... →

1&2 layers




\$2

From 1000 \$/pcs
Build Time: 24 hours

- ✓ Only \$2 for 100x100mm PCBs
- ✓ \$50/m² for batch production
- ✓ FR4, Aluminum, Lead Free PCB

Quote Now

4&6 Layers




\$2

From 1000 \$/pcs
Build Time: 4 days

- ✓ 4 L - \$2 for 50x50mm PCBs
- ✓ 4 L - \$9/m² for Batch production
- ✓ 6 L - \$20 for 50x50mm PCBs

Quote Now

PCB Assembly




\$8

From 1000 \$/pcs
Build Time: 24 hours

- ✓ 300,000+ In-stock Parts
- ✓ Free DFM File Check
- ✓ Exports JLCPCB Assembly

Quote Now

3D Printing



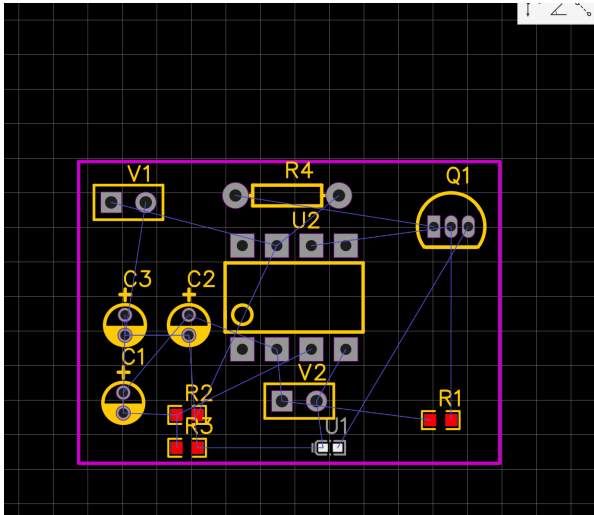
\$1

From 1000 \$/pcs
Build Time: 48 hours

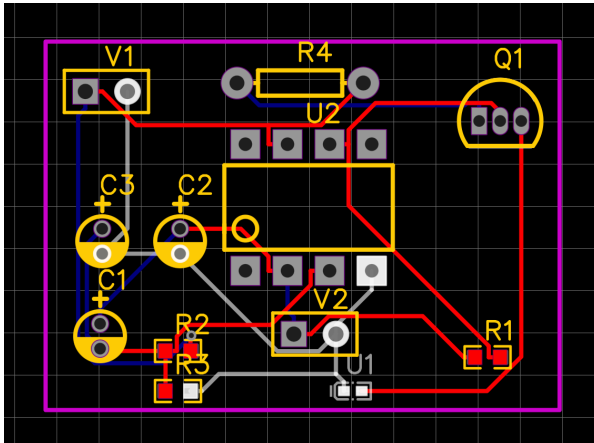
- ✓ Price as low as \$0.07/g
- ✓ SLA, M.F, SLM, FDM, SLX
- ✓ Resin, Nylon, Metal, ABS

Quote Now

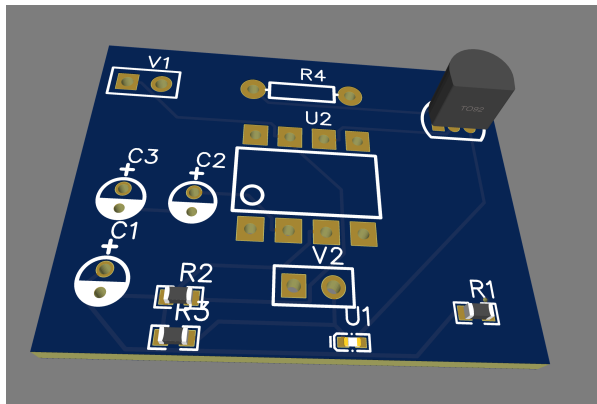
PCB Before Routing



PCB After Routing



3D View



Conclusion

The mobile phone detector based on an op amp is an effective and low-cost project, to detect the existing of a mobile phone around via EM radiation emitted by the GSM signals.

Thank you for listening!

