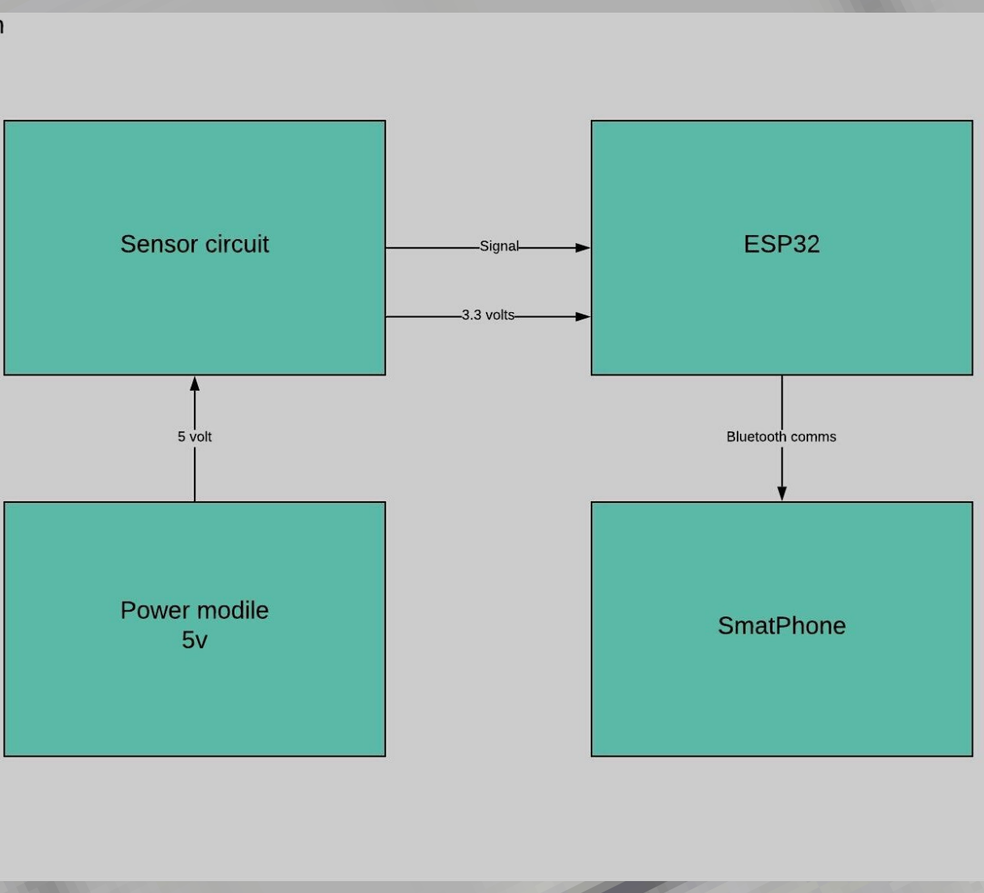
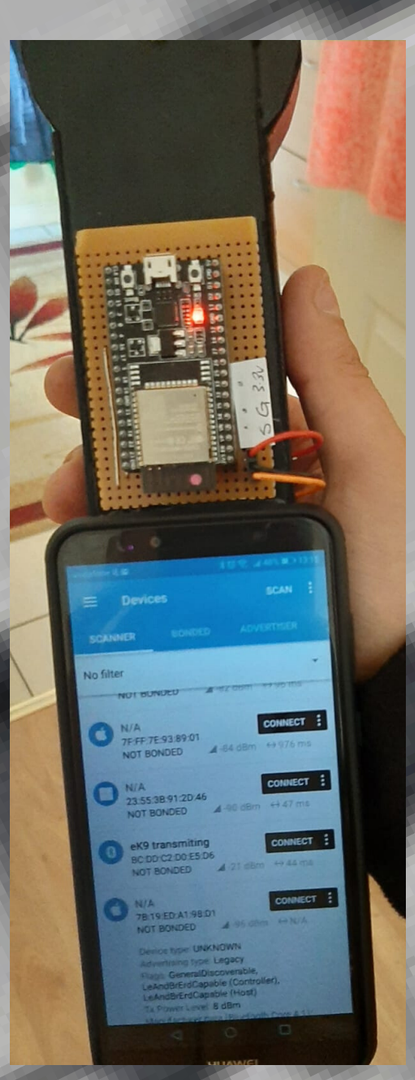
eK9
Metal detector

What is eK9?

When we travel abroad with planes, its very annoying to stand in que for check up. All the security measures in airport are very high. I came up with eK9 (smart metal detector). The device uses sensor to detect metallic objects, accelerometers to detect device position and mobile app which will draw shape of detected object under clothes. This invention should help speed up check up and make easer for security in airports.





How it started?

The project started of from designing hardware, the sensor. It took most of the time. The sensors hart is 555 timer chip which pulses current trough coil and creates magnetic field. Because current is alternating coil becomes like resistor. Every time magnetic field taches metallic object the resistance is changing and changing frequency output. The output of 555 times was unusable for MCU, I in addition used 2 operational op amps. First op amp was used as Shmitts Trigger, it changes output when input reaches certain level of voltages. Second op amp works as buffer, it delivers safe signal to MCU from 0 to 3.3 volts. Rest of the sensor uses 5v input.

More about eK9?

Another main part of eK9 Is firmware for esp32 and mobile app. The firmware will count frequencies and convert them to decimal number. After words numbers is sanded over Bluetooth to smartphone. Ones smart phone receives that number, the app decides what colour to draw on the screen. The position is pinpointed by using accelerometers on smartphone. The shape of metallic object will be shown on phone screen

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