

- ☐ rpi 4 (\$0)
- ☐ screen (\$46)
- ☐ Power-bank (\$60)
- ☐ radar (expensive) (\$87 x 2)
- ☐ HDMI Cable (50cm)
- ☐ Turn switch (\$15)
- ☐ LED SMD 5050 (\$13)
- ☐ Acrylics (Ideate) (\$10)
- ☐ Potentiometer (\$0)
- ☐ Electrical Wire
- ☐ Sealant
- ☐ waterproofing spray (if 3d print parts)

Central Computer

Pi 5 vs. Pi 4

Pros

- Performance: 2 - 3x the Pi 4

Cons

- Peak power usage: Peak power draw is 12W vs 8W for the Pi 4
 - Draws double power at idle and under load
- Higher temperature
- Max USB current draw is 600 mA using a 3A power supply

<https://hackaday.com/2023/09/28/a-raspberry-pi-5-is-better-than-two-pi-4s/>

<https://bret.dk/raspberry-pi-5-review/#Raspberry-Pi-5-Benchmarks>

Radar:

1. power
2. confusion matrix
3. price
4. pin count
5. size

SparkFun Pulsed Radar Breakout - A111 (\$60 * 2)

<https://www.sparkfun.com/products/16826>

mmwave - 24GHz Microwave Radar Distance Sensor (20 Meters) (80\$ * 2)

<https://www.dfrobot.com/product-1882.html>

<https://rfbeam.ch/product/k-ld7-radar-transceiver/> (x2)

- It gives far range (30 m for car)
- It mentions blind spot detection as a use case
- Gives serial output instead of raw sinusoidal data which simplifies implementation
- Reasonable price/power consumption

<https://www.digikey.com/en/products/detail/rfbeam-microwave-gmbh/K-LD7-RFB-00H-01/10638820>

Python driver:

<https://github.com/nickovs/kld7>

Cheap but need amplifier (20m range) (x4)

<https://www.amazon.com/SMAKN-Microwave-10-525GHz-Doppler-Detector/dp/B00FFW4AZ4>

Good tutorial:

<https://wiki.ros.org/Drivers/Tutorials/SpeedMeasurementWithRadarSensorHB100Python>

Git Repo:

<https://github.com/jbeale1/doppler?tab=readme-ov-file>

Battery:

1. size
2. capacity
3. output voltage
4. type
5. price

20000mAh 5v

https://www.amazon.com/Anker-PowerCore-Portable-Double-Speed-Recharging/dp/B01JIWQPMW?source=ps-sl-shoppingads-lpcontext&ref_=fplfs&smid=A294P4X9EWVXLJ&th=1

Lights:

smd 5050 yellow **(NEED LINK)**

(sus link) <https://www.lc-led.com/View/itemNumber/2442>

(Bigger led)

https://www.amazon.com/Hyuduo-Brightness-Aluminum-Floodlight-60006500K/dp/B093DDKCMC/ref=sr_1_4?crid=22SR4Y7LEUKCH&keywords=led%2Bchip&qid=1707681925&srefix=led%2Bchip%2Caps%2C192&sr=8-4&th=1

Switch:

Turn switch

https://www.amazon.com/Feiteplus-Aluminum-Motorcycle-Handlebar-Blinker/dp/B01ARJEHUW/ref=asc_df_B01ARJEHUW/?tag=hyprod-20&linkCode=df0&hvadid=312034016842&hvpos=&hvetw=g&hvrnd=7766999643427909199&hvpone=&hvptwo=&hvmqmt=&hvdev=c&hvdvcmdl=&hvlocint=&hvlocphy=9005925&hvtargid=pla-570936019111&pvc=1&mcid=3e40f7d860743acc8463dc65401b14a3&gclid=CjwKCAiAt5euBhB9EiwAdkXWO2w0_XRfSvXzIHHGP7RT-RQFcl2bw_5FYQAK7z4pXoXGiAruBMC6FhoCMmYQAvD_BwE

Sealant

(NEED LINK)

Screen

<https://www.amazon.com/Hosyond-Display-1024%C3%97600-Capacitive-Raspberry/dp/B09XKC53NH?source=ps-sl-shoppingads-lpcontext&ref=fplfs&smid=A1PKC2PUMNR8VD&th=1>