

Personalized Air Quality Monitoring

A citizen data science project

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Air Pollution

- ▶ Major contributor to ill health
- ▶ Almost 10,000 deaths per year in London are caused by poor air quality
- ▶ An invisible problem
- ▶ Studies often focus on large areas e.g. city-wide air quality



My Project:

- ▶ Personalised data
- ▶ Enable preventative measures via notifications
- ▶ Focus on reducing exposure
- ▶ Lightweight & affordable

The Sensors

PMS5003

- ▶ PM1
 - ▶ PM2.5
 - ▶ PM10
- Particulates

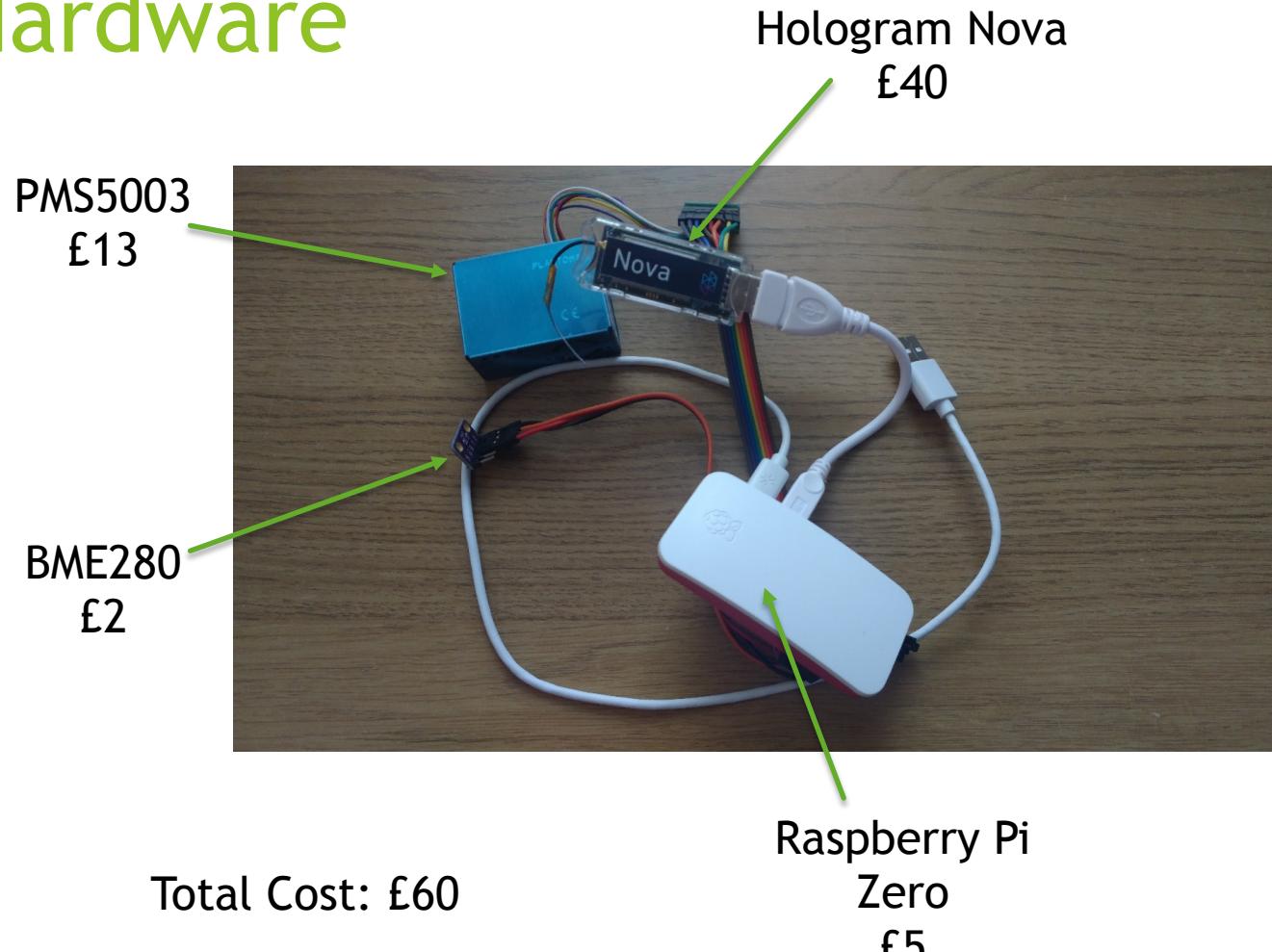


BME280

- ▶ Temperature
- ▶ Humidity
- ▶ Pressure

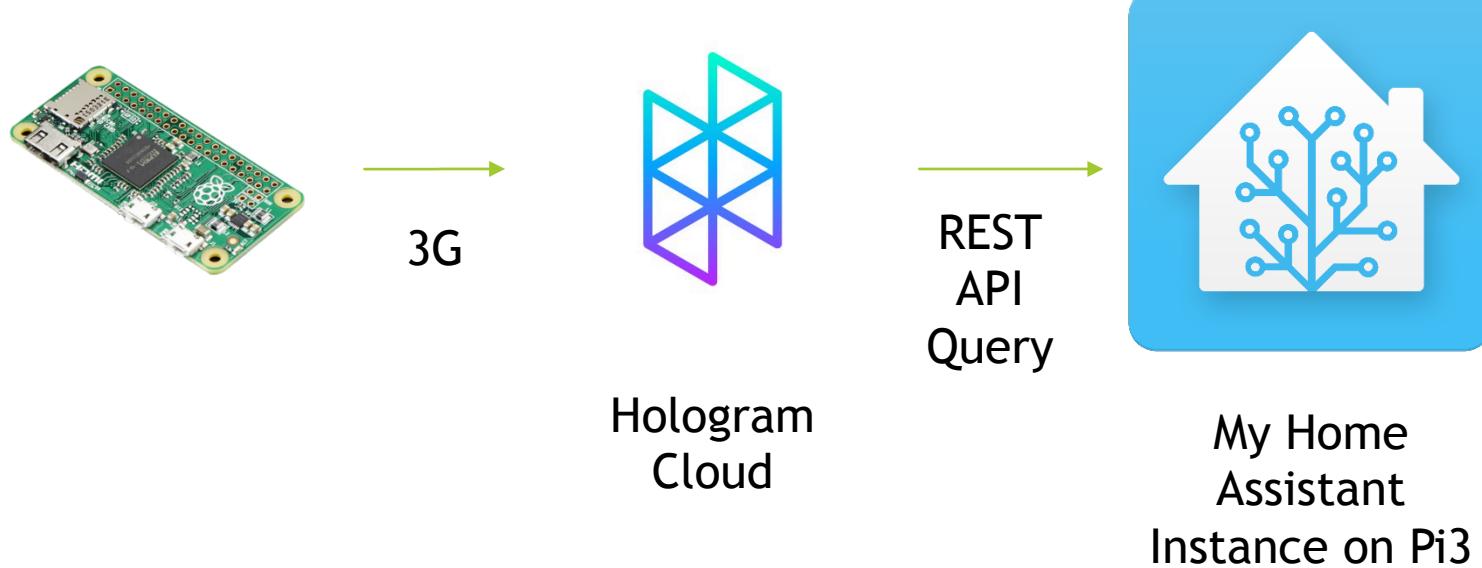


Hardware



Hackster.io Project - <https://goo.gl/58tKD5>

IoT Integration

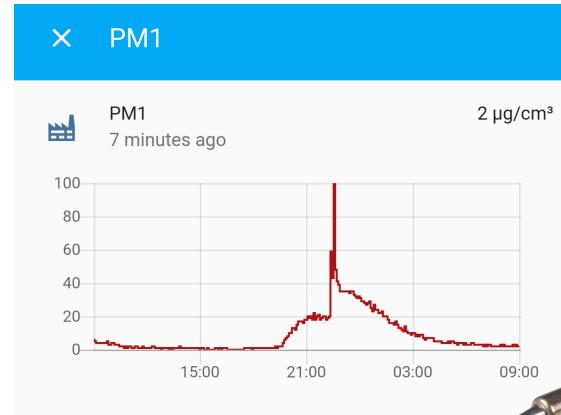
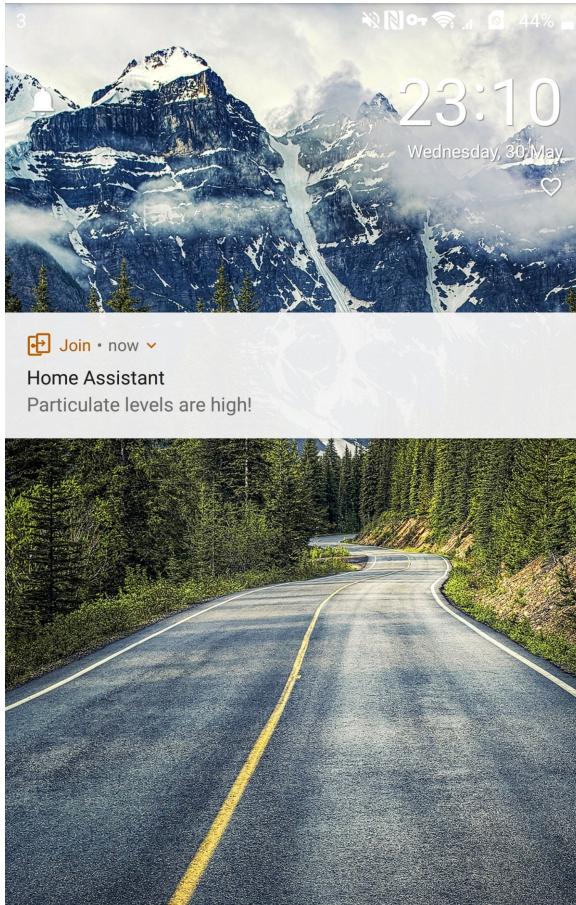


Home Assistant Interface

- ▶ Wrote a custom component to fetch data from Hologram Cloud
- ▶ Display readings in real time in Home Assistant



Analytics



Further Work

- ▶ Collect geotagged data and plot it in Home Assistant
- ▶ Develop predictive model that can advise the user to change their behaviour
- ▶ Develop a lower power solution using a MicroPython board

