

# u3a Computing Group

Alan Hopwood, 6 June 2024

# Agenda



Welcome

Current News, Issues and Questions

Topic list

Topic: Home Networks / Smart Homes

AOB and Follow up

# Current News, Issues and Questions

Anything to discuss?

# Future Topics

Topic	Votes
Use of computing in Medicine	4
History of computer development	3
"Fix it" software for Windows	3
Key components of a modern computer & their interrelationships	3
Members' favourite magazines & websites	2
Quantum Computing	2
Future of Human Computer interface & cyborgs	2
PC boot sequence, BIOS, Disc structure	2
Use of computing in warfare	1

# Presentation

## Home Networks / Smart Homes

*There are many ways to skin a cat...  
But who wants a skinned cat?*

# Agenda

## Smart Homes

- What are we talking about
- Example Systems and Devices
- Benefits (according to the salesman)
- Some leading brands and what is available
- Architecture / approach
- Costs
- Potential Issues

# What are we talking about?

## Smart Homes

Smart homes are about having:

- Internet-connected devices and systems  
for
- Remote monitoring, automation, and management of various home functions.
- Functions can include lighting, heating, security, entertainment, and appliances.
- Aim to enhance convenience, security, energy efficiency, and overall quality of life.

# Example systems & Devices - 1

## Smart Homes

### Smart Devices and Appliances:

- Include smart lights, thermostats, locks, cameras, refrigerators, and ovens that can be controlled remotely via a smartphone or other devices.
- Example: A smart thermostat like the Nest can learn your schedule and preferences to optimise heating and cooling, thereby saving energy.

### Home Automation Systems:

- These systems integrate various smart devices and allow them to work together seamlessly. Automation can be set up for tasks such as turning on lights when someone enters a room or adjusting the thermostat based on the time of day.
- Example: Smart home hubs like Amazon Echo or Google Nest Hub can control multiple devices through voice commands or pre-set routines

# Example systems & Devices - 2

## Smart Homes

### Security and Surveillance:

- Smart homes often include advanced security systems with features such as motion detection, video surveillance, and remote monitoring.
- Example: Ring video doorbells provide real-time video and audio feeds from your front door, which you can access from your phone.

# Example systems & Devices - 3

## Smart Homes

### Energy Management:

- Smart homes can monitor and manage energy consumption, leading to more efficient use of resources.
- Example: Smart plugs and energy monitoring systems can track energy usage of connected devices and suggest ways to reduce consumption.

### Health and Wellness:

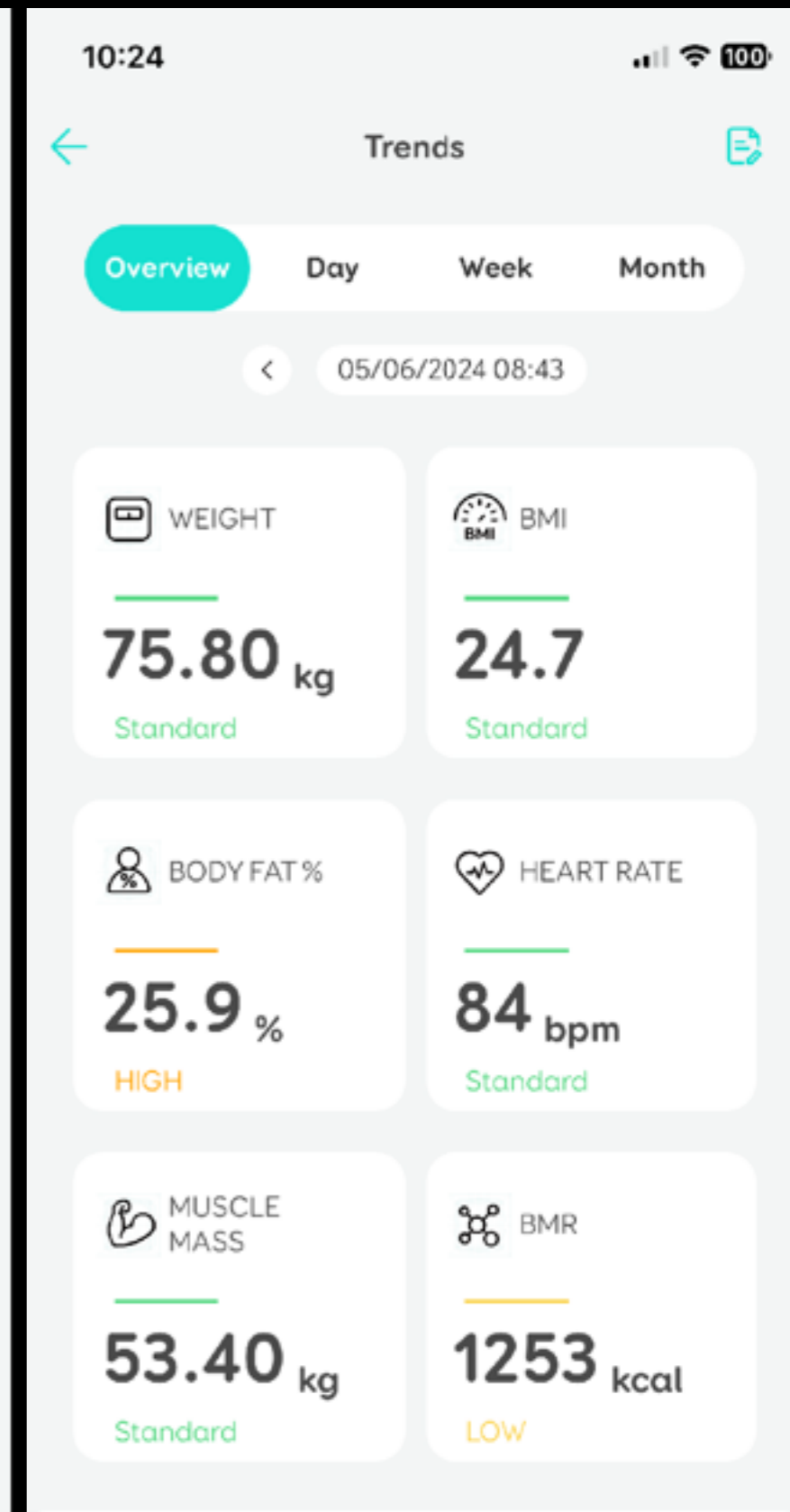
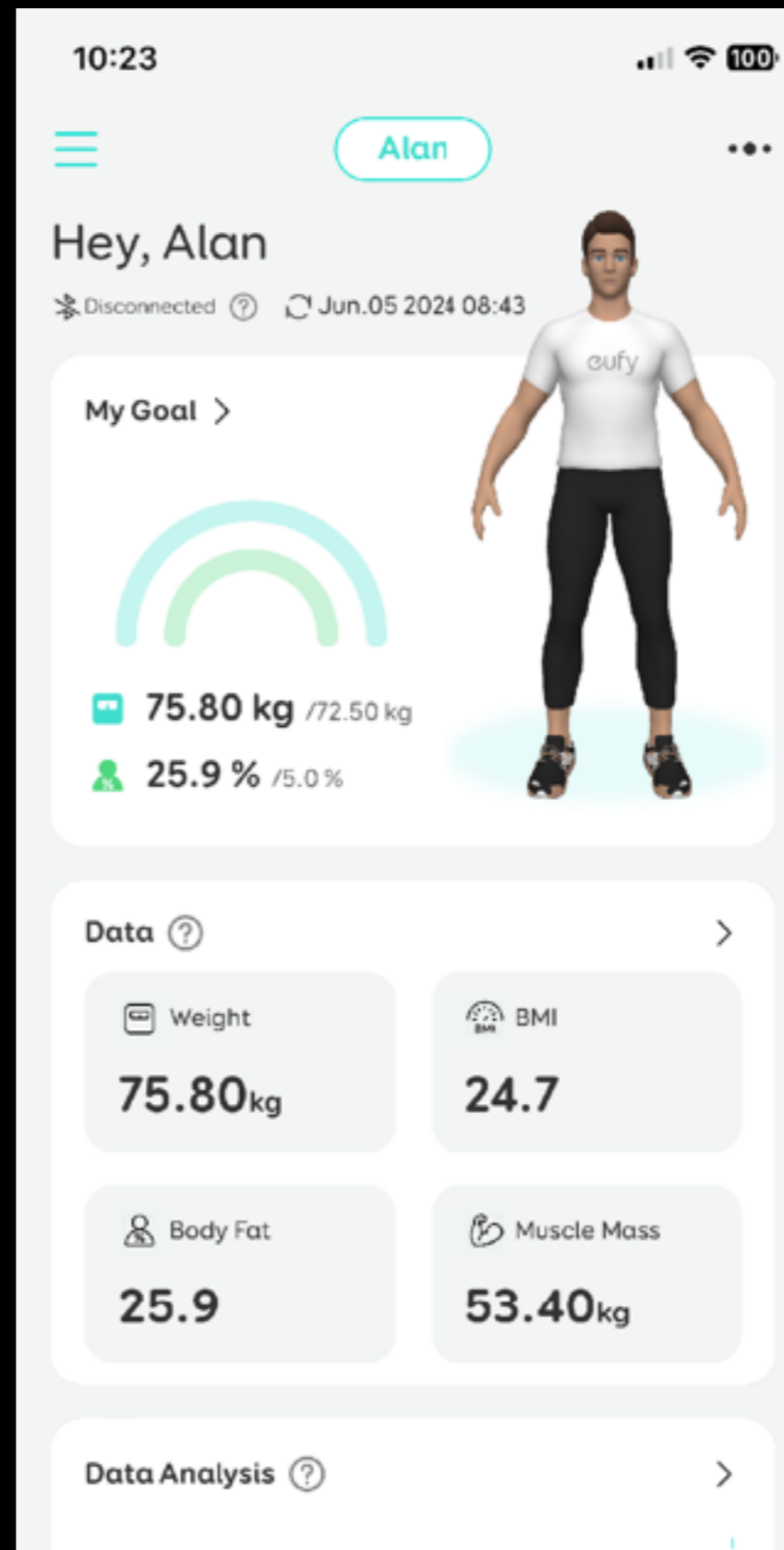
- Devices like smart beds, air purifiers, and fitness trackers contribute to the inhabitants' health and well-being.
- Example: Smart air purifiers can detect and filter out pollutants, and provide real-time air quality updates.

# Example systems & Devices - 4

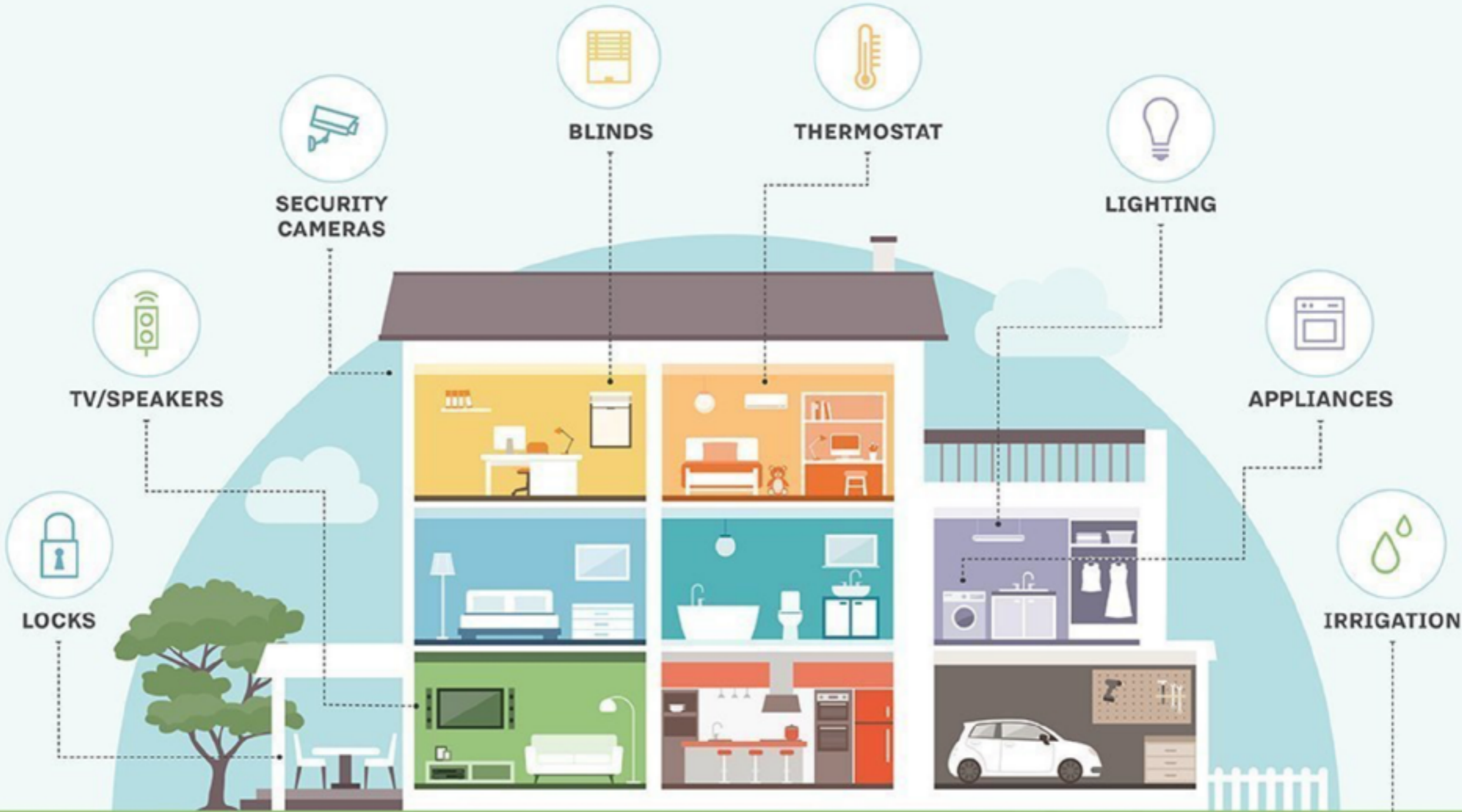
## Smart Homes

### Health and Wellness:

- Smart Scales



# HOME SMART HOME



# Benefits of Smart Homes

## Smart Homes

- **Convenience**: Automation and remote control allow for easier management of home functions.
- **Energy Efficiency**: Optimised use of energy-consuming devices can reduce utility bills.
- **Enhanced Security**: Advanced surveillance and alert systems improve home safety.
- **Customisation**: Personalised settings and automation can cater to individual preferences and needs.
- **Accessibility**: Smart homes can be particularly beneficial for individuals with disabilities, providing easier control over home environments.

# Example Scenario

## Smart Homes

Imagine waking up in a smart home:

- Your smart alarm clock gradually brightens your bedroom lights and adjusts the temperature to your preference.
- As you enter the kitchen, the smart coffee maker starts brewing your favourite coffee.
- When you leave for work, the smart security system arms itself, and the thermostat adjusts to an energy-saving mode.
- Throughout the day, you can monitor and control your home from your smartphone, ensuring everything runs smoothly.

# From Screwfix



Google Nest



Ring



Hive



Amazon Echo



Blink



Philips Hue



Tado



Swann



Yale



TP-Link



Lightwave



TCP

# What is available: Google Nest

## Smart Homes

Your helpful home starts here.



Speakers



Displays



Streaming



Wi-Fi



Smoke & CO alarm



Cameras



Doorbells



Thermostat



Accessories



Nest Aware

# What is available: Ring

## Smart Homes

ring

Products ^

Protect Plans v

Help v

Offers

Login



United Kingdom



Video Doorbells



Security Cameras



Security System



Access Control



Accessories



Ring for Apartments



Welcome to whole home  
peace of mind.

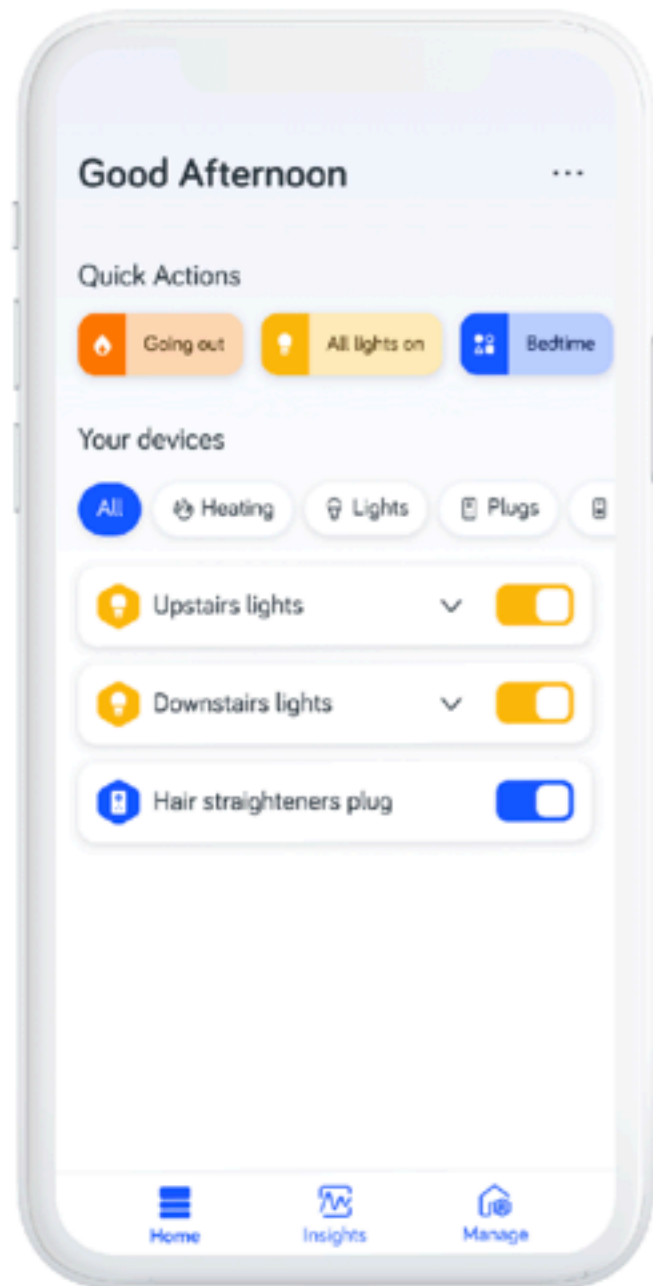
Protect your home, your way. Explore smart  
security devices for every corner of your home.



# What is available: Hive

WHAT WE DO

We're making **homes greener**



Smart Heating



Smart Home



EV Charging

New



Solar & Battery

## Seamlessly smart

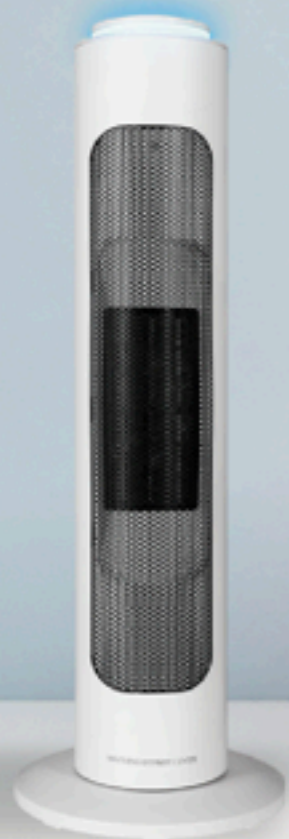
Simplify the day-to-day with a home that always knows what you want. Light when you need it. Power without plugging in. And energy-saving smarts that mean your home's never wasting energy. All made easy with the Hive app.

[Discover Smart Home](#)

# What is available: TCPsmart

## Smart Homes

**TCP** Smart 



**SMART  
HEATING**



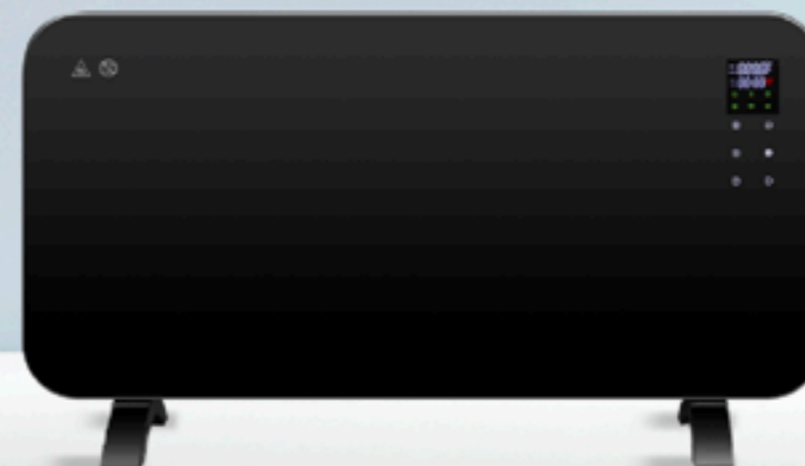
**SMART  
LIGHTING**



**SMART  
SECURITY**



**SMART  
PLUGS**



# From Screwfix



Google Nest



Security

Ring



HIVE  
Heating

Hive



Integration

Amazon Echo



Security

Blink



Lighting

Philips Hue



Heating

Tado



Heating

Swann



Security

Yale



sockets,  
cameras



Lighting

Lightwave

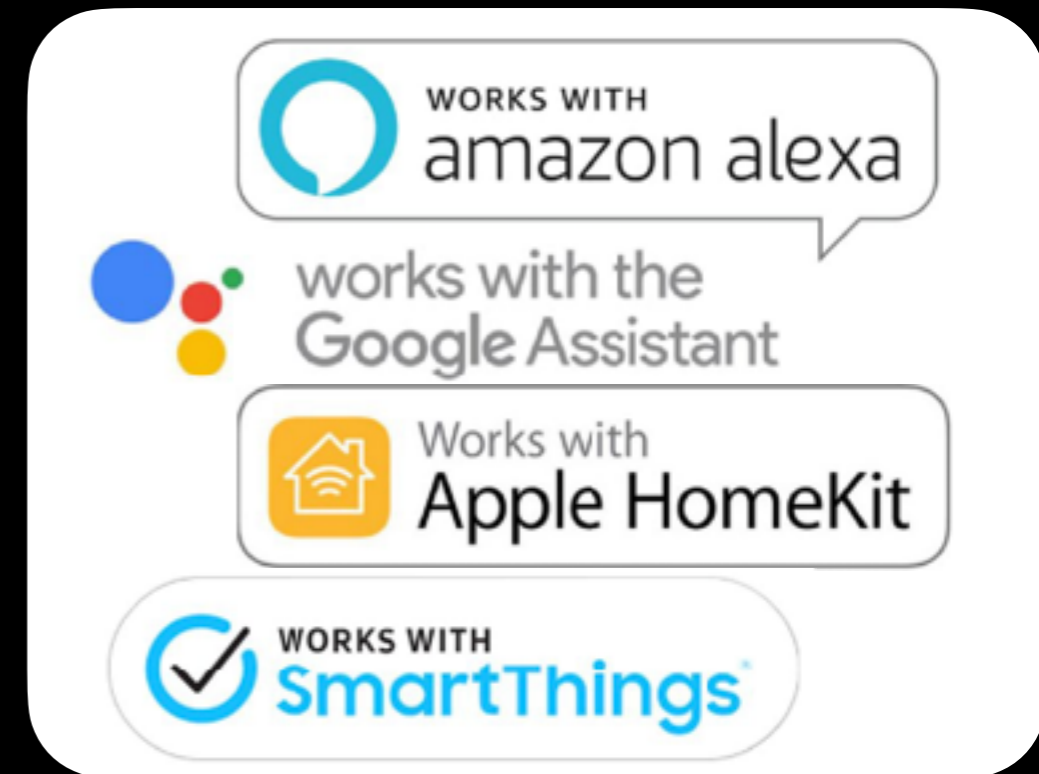


TCP

# Architecture / Approach

## Smart Homes

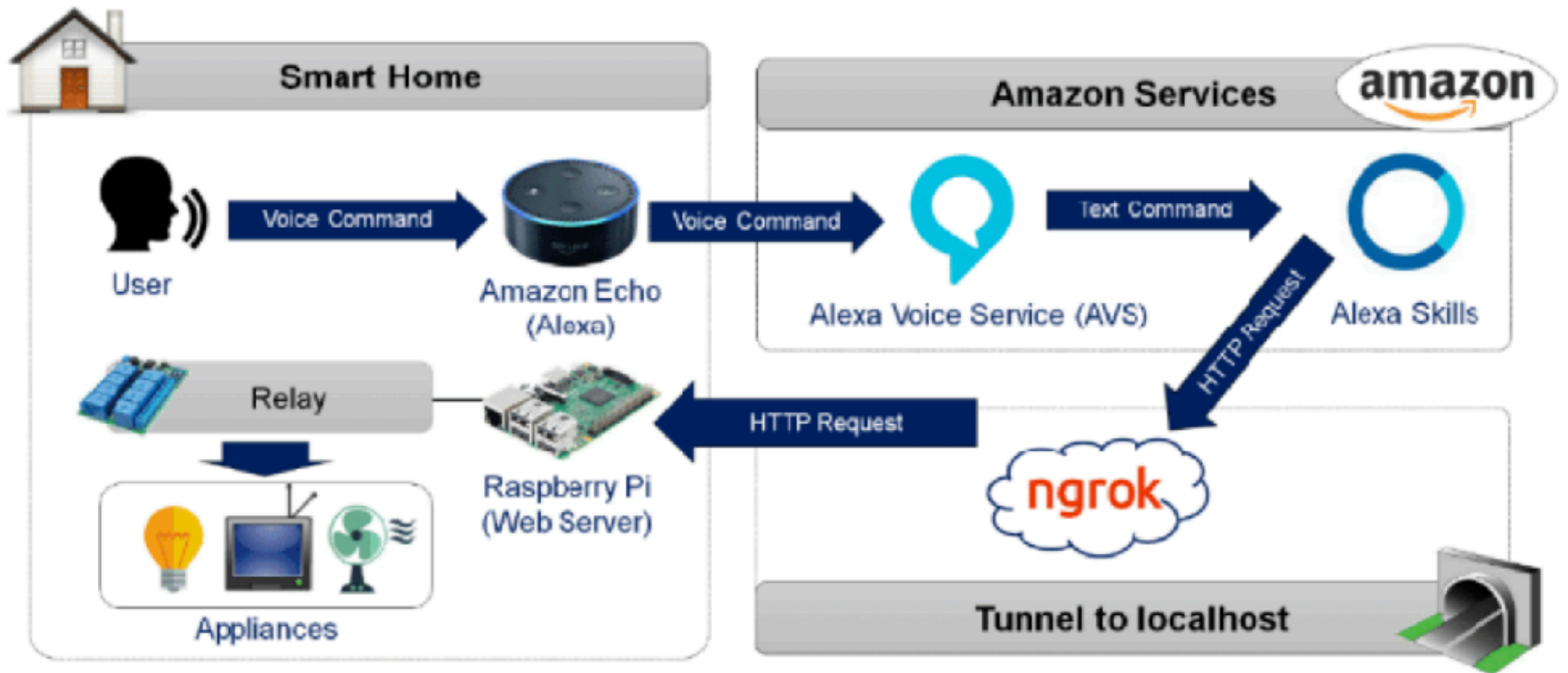
- Platform “Ecosystem” - connectivity
  - Google Assistant
  - Amazon Alexa
  - Apple HomeKit
  - Samsung SmartThings
  - “Specialised” (Sonos, Bosch...)
- Controls
  - Smartphone
  - Smart speaker
  - Smart display
- Devices / sensors / actuators
  - Security
  - Heating
  - Entertainment
- Infrastructure
  - WiFi / Bluetooth / cable
  - Internet access



# Smart home architecture

## Smart Homes

An implementation example to illustrate potential dependencies



Architecture of the Implemented System

# Cost structures

## Smart Homes

- Alexa / Google Assistant / Apple HomeKit / SmartThings
  - Are currently free for end users.
- Hive Live: £20 per year
- Nest Aware: £60 per year
- Ring Aware: £72 per year
- Companies are trying to build ongoing revenue streams
- Sell added features: remote access, optimisation, cloud storage

# Issues

## Smart Homes

- **Internet dependency:** Often high level functionality requires internet service - check what happens when internet is off.
  - What are the back up controls?
- **Battery dependency:** wireless sensors need power.
- **Connectivity issues:** wireless devices rely on Wifi or Bluetooth
  - **Stability:** Some systems have an inbuilt wifi network. May need to sort out separate channels
  - Range issues
- **Security:** Every system with Internet links is a potential risk.
- **Set up complexity**
- **System incompatibility:**
  - One integrated system or multiple specialised systems.

**Questions?**