SMART KETTLE

- Fills in the kettle automatically through a valve connected to the water pipes
- Automatically fills your cup through a valve at the bottom
- Temperature sensor to detect when the water reaches boiling temperature
- Water sensor to tell the water valve when to stop filling the kettle

SMART ACCOMMODATION

- A temperature sensor that tells you if the temperature goes below or above your chosen preferred temperature range
- A button presser that presses the heating button if the temperature goes below the preferred range
    - In Mealmarket exchange the heater stays on for 30 minutes after you press that button, so if needed it will need to be pressed again after that about of time
- A button presser that presses the heating switch to turn it off if the temperature is too high
- Some sort of led screen where notifications can appear, or an app
- A Co2 sensor that sends you a notification to open the window if the air quality is too low
- A light that turns on when you open the wardrobe, since often these aren't very well lit
- A reminder of who needs to clean the common areas in your flat and when
- I don’t how how we would do this but it would be cool to add a sensor to the trash cans that tells you when they are full and who’s turn it is to bring them out
- If you don’t have a light switch near the bed the app/display could let you turn off and on the lights through a button presser, or even voice recognition
- Alarm
- Smart curtains
- Doorbell camera

SECURITY SYSTEM/SMART HOME

- Cameras
- Loud alarm?
- Window and door motion detector
- Smoke detector
- Co2 detectors
- Heating sensor
- Button presser for heating
- Oven termal camera(?)
- Automatic light
- Motion Sensor for lights for empty room

Extras if we have time

- Damp sensor
- Motion sensor
- Pin for the door (?)
- Camera face recognition

NOTES
Cost: £400
Target audience: Apartment builders + individuals(secondary consumers)

Adapted to home and office environments

Your report should be clear on the following:

- The problem this product is aimed at.
    - House investors
    - Also individuals that want to increase the value of their already existing home

- The stakeholders and how the product will benefit them.
    - Amazon possible future monopoly -> cheaper and more tech homes that they only produce (3d printed home powered by Alexa)
    - House investors need to modernise their homes now -> people will have no reason to choose an older building with no technological features

- What the product should do to address this problem
    - Our smart features will make our home more marketable in the long run
    - And more appealing even now
        - More convenient
        - safer

- How the product will achieve this.
    - List sensors and stuff

- The extent to which the proposed system includes the required core elements?
    - Go through list

SENSOR LINKS

Motion sensor: https://thepihut.com/products/pir-motion-sensor-module
Door locks:
Camera: https://thepihut.com/products/zerocam-camera-for-raspberry-pi-zero
Loud alarm:
Pin for the door: https://thepihut.com/products/sealed-membrane-4-4-button-pad-with-sticker
Window and door motion detector, accelerometer:
https://thepihut.com/products/adafruit-lis3dh-triple-axis-accelerometer-2g-4g-8g-16g
Window and door magnetic contact switch:
https://thepihut.com/products/magnetic-contact-switch-door-sensor
Smoke Sensor:
https://thepihut.com/products/max30105-breakout-heart-rate-oximeter-smoke-sensor
Damp Sensor: https://thepihut.com/products/soil-moisture-sensor-1
Co2 detectors: https://thepihut.com/products/gravity-analog-co2-gas-sensor-for-arduino
Thermal Camera:
https://thepihut.com/products/adafruit-mlx90640-24x32-ir-thermal-camera-breakout
Servo to press button:
https://www.amazon.com/LewanSoul-LD-20MG-Standard-Digital-Aluminium/dp/B073F92G2S/ref=sr_1_3?ie=UTF8&qid=1538691198&sr=8-3&keywords=servo+metal+gear&pldnSite=1
Display: https://thepihut.com/products/official-raspberry-pi-7-touchscreen-display

Phone sim card:
https://thepihut.com/products/adafruit-fona-mini-cellular-gsm-breakout-ufl-version
Sound Sensor: https://thepihut.com/products/gravity-analog-sound-sensor-for-arduino
Adaptor for speaker:
https://shop.pimoroni.com/products/pico-audio-pack?variant=32369490853971&currency=GBP&utm_source=google&utm_medium=cpc&utm_campaign=google+shopping?utm_source=google&utm_medium=surfaces&utm_campaign=shopping&gclid=CjwKCAiA65iBBhB-EiwAW253W784bs6coGWZ78fCwrdWWGwsoTZ4ZWiDZ6lxr8UvalSYjrOzxxl6XBoCHvgQAvD_BwE

How the sensors will work:

- Motion sensor to detect movement if house is supposed to be empty and send a sms.
- Sound Sensor next to doorbell speaker, once doorbell is rung, it takes a picture with camera attached on door peephole.
- Pin next to door, if the door opens without activation code via sms, you have x seconds to enter pin code before the alarm is sent.
- Heat sensor or light sensor on oven door. You can send message “Is oven on” and it will reply with “yes” or “no”
- You can message “turn alarm on” after which, if any doors open, a message is sent to you.
- Magnetic contact switch to determine when doors/windows open/close.
- Damp sensor in carpet in carpets, when it gets too high, it means flooding, and texts an appropriate message (ideal locations are outside of shower room)
- CO2 sensors in small rooms, texts you when the sensor reads some level is too high.
- Smoke sensor, text you if levels pass a point.
- Servo to press button, you can attach it next to a radiator on switch, you can set it to turn on at specific times, or text it to turn on.
- That can be connected to light switches, can be turned on/off with timer, motion sensor, text. Ie “turn all lights off/on” turn the living room light on. Can be used to trick potential thieves into thinking someone is home.
- Temperature sensor can send a message to the radiator button servo to turn on if heat falls below a preferred temperature.
- Can connect raspberry pi to a speaker for alarms, wake up alarms, music...