# Smart Dog Home IoT Project (Working Title) Possible Components

## Components

1. Smart Collar
2. Dog door
3. Food / water bowl
4. Video call with dog
5. Remote controlled ball launcher / treat

## Smart Collar

This could be how we interact with the rest of the IoT devices. If we attach a Bluetooth or NFC chip etc. We can know if the dog is close to any of the devices. If it is close to the dog door it can unlock. If it is close to the feeding bows/ ball launcher it can prevent them from operating and injuring/ annoying the dog

### Possible Hardware:

* NFC
* Bluetooth

## Dog door

Locks and unlocks when the dog is nearby. It will require a transmitter/ receiver and an actuator. The sensor will be the same type as the dog collar. An actuator is needed to open / close the door

### Possible Hardware:

* NFC
* Bluetooth
* Actuator

## Food / water bowl

There should be a scale under the bowls to determine how full they are. If the dog is not near and they are nearly empty or the user requests it, they can be refilled. This will require 2 weights, Bluetooth / nfc and a Wi-Fi connection. 2 actuators will also be needed to add more food / water.

### Possible Hardware:

* NFC
* Bluetooth
* Actuator x2
* Wi-Fi

## Video call with dog

The user could interact with the iot system in a number of ways, such as specifying how much food to give or locking doors. Another way is by logging in and watching the dog through a camera. This may require some authentication features as it will use the internet. Firebase authentication could help. Web server may be outside the scope of the project.

### Possible Hardware:

* Camera
* Microphone
* Wi-Fi
* Web server

## Remote controlled ball launcher / treat

Similar to the video call the user could interact with the dog in a number of ways to prevent it getting bored. For example, the user could select to give the dog a treat or to throw a ball. This will require at least one actuator for each additional component that will be implemented.