**Overview:**

This is a dog-controlled bed that can either heat cool the dog’s bed based on the ambient temperature.

**How it activates:**

When the dog approaches the bed, a motion sensor activates the bed. If it is below the target cooling temperature (i.e. 70 degrees), the “Cool mode” turns on.

If it is above a target heating temperature (i.e. 60 degrees), the “Heat mode” engages.

The dog can also push a button to turn on the bed. If the dog pushes this button while it is already on, the timer resets back to the full time

**Dog bed modes:**

Because dogs' eyes only have two types of cones (just 20 percent of the cones in human eyes), their color spectrum is limited to shades of gray, brown, yellow and blue.

Off: LED’s/Hue are off, heating and cooling elements are off

Setup: LED’s/Hue are blinking white

On: LED’s/Hue lightly breathe the color (blue/yellow) that will engage if dog is in the area.

Cool mode: Fan turns on; LED lights go to solid Blue

Heat mode: heating pad turns on; LED lights turn to solid Yellow

**Automated function:**

Bed turns off after configured off time

**Menu:**

Off/auto/heat/cool

Set up cooling temperature

Set up heading temperature

Set up configured auto-off time

**Components needed:**

Physical dog bed:

* Bed (2ft x 2ft) plywood
* 4 legs (4 inches x 2 inches x 2 inches)
* Heating pad
* Small quiet 5V fan
* Blanket

Sensors:

* Motion detector
* Temperature detector

Components:

* Joystick to scroll through configure settings
* WEMO for heating pad
* 5V fan connected to micro-processor for cooling
* Relay to turn fan on/off

Printed items

* Printed button cover to make dog button big enough to easily push
* Laser cut sign with dog/product name ( Welcome KD)

Display

* Neo pixels to show current state of bed (for dog)
* Hue light to show current state of bed (for humans)
* Small screen for menu

**Feedback:**

Elsmen: should add button, so dog can activate, add motion sensor so it starts heating up when dog is close (I had the idea of doing it with a pressure sensor, but Elsmen’s idea is better)

Isaac: warried about safety, should have auto shut-off (added this time shutoff)

Kathryn: need dog safe heating pad, so it doesn’t get too hot, keep temp sensor away from heating pad so it doesn’t interfere.