



# CATaLOG

## An RFID Cat Tracker

Pete Prior

# The Grand Plan

Wanted to see when our two new cats went in and out of the house

- 1) Attach an RFID tag to each of them
- 2) Build something that could read it
- 3) Make it tell something when it sees one



# What I get out of it



- ◎ It's a fun and interesting project to work on
- ◎ Something involving unpredictable things
- ◎ Combines two things I'm passionate about

# What the cats get out of it



- ◎ RFID bling
- ◎ Increased safety
  - We know if they've been out too long
  - We know if they're not going out at all
- ◎ Don't have to be shut in when we're away

# Why I'm telling you this



- ⊙ Hoping other people try something similar
- ⊙ Could do with ideas for improving it
- ⊙ Motivated me to complete it

# The stars - Bobbin



# The stars - Tuffin



# A little bit about RFID tags



- ⦿ Little chip which stores a number
- ⦿ Chip attached to an antenna
- ⦿ Reader's radio signal powers chip enough to respond with the number stored on it





# The main idea



- ⊙ RFID tag glued to cat's nametag
- ⊙ Reader by the catflap
- ⊙ Microcontroller talking to remote server
- ⊙ Switches to manually set a cat in or out

# Testing the RFID reader



The screenshot shows a Linux desktop environment with a terminal window and a GUI application. The terminal window displays the following code and output:

```
#ti = 0 # tuffin in boole
ser = serial.Serial('/dev/

while 1:
    if ser.inWaiting()
        s = ser.re
        if s.strip
            if

^Cpeter@woodstock:~$
peter@woodstock:~$ python se
Saw Tuffin come in
Saw Bobbin come in
Saw Bobbin go out
Saw Tuffin go out
Saw Bobbin come in
Saw Tuffin come in
Saw Bobbin go out
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Saw Bobbin come in
Saw Bobbin go out
Saw Bobbin come in
Saw Bobbin go out
Saw Tuffin come in
Saw Bobbin come in
Saw Tuffin go out
ser.close()

def __init__(self):
    "sertestgui.py" 135L, 3764C written

self.DisplayTuffinImage('/home/peter/images/notuffin.jpg')
else:
    print 'Saw Tuffin come in'
    self.DisplayTuffinImage('/home/peter/images/tuffin.jpg')

self.st = time.time() #set a flag for de-cat-balance
self.ti = not self.ti
break
```

The GUI application, titled "Cats!", displays two images. The left image shows a black and white cat sitting on a table next to a clear plastic storage bin. The right image shows a black cat sitting on a red chair, with a large red prohibition sign (a circle with a diagonal slash) overlaid on it, indicating that this image is not the one being displayed by the application.

# Building the system



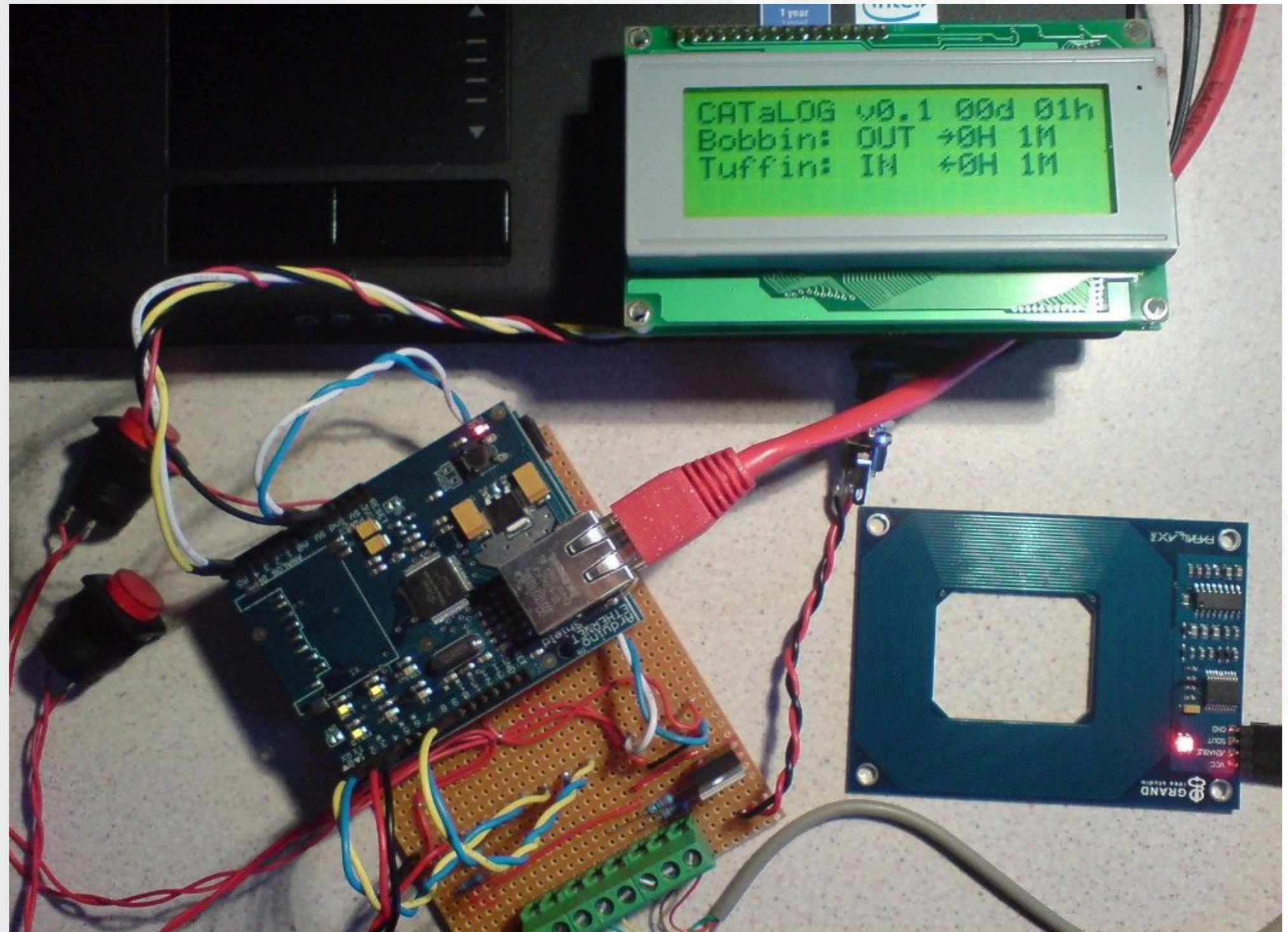
“Incompatible is what two compatible pieces of hardware become when you try to connect them together”

- Unknown

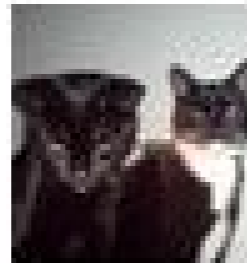
# A cheaper solution?



# The setup



# It talks to twitter...



**BobbinAndTuffin** Bobbin has gone IN  
*less than a minute ago from web*

<http://twitter.com/BobbinAndTuffin>

# ...to us...



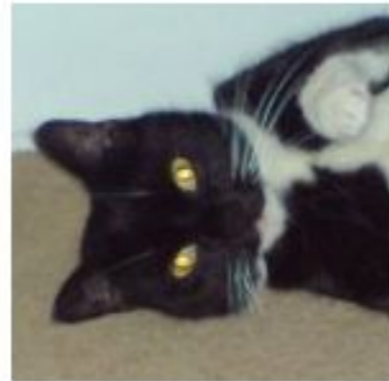
# ...and the web



## CATaLOG

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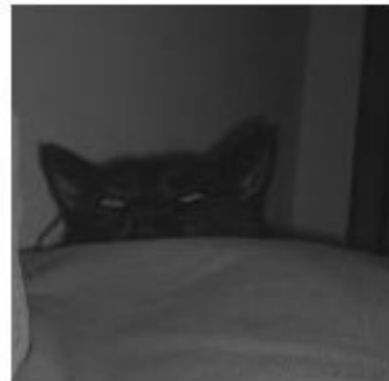
### Current Cat Status



#### Bobbin

in

Last seen at **22:33** on **Thursday**  
Been in for **0 minutes**.



#### Tuffin

out

Last seen at **10:16** on **Thursday**  
Been out for **12 hours** and **17 minutes**.

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Data from the CATaLOG project



# Improvements



- ⊙ Infra-red beam each side of the cat flap
- ⊙ Makes sure a cat has actually gone through
- ⊙ Can tell if a cat gets half way and reverses

# Pros and cons



- ◎ Pros

- We can now see if our cats are in or out

- ◎ Cons

- I now view my cats as users

# Real world lessons



- ◎ If users break or can't use something I've designed or built, it's not their fault – it's mine.
- ◎ People only like to spend their free time working on or being part of something they enjoy

# FIN and more information



Project Pages

<http://nermal.org/projects/catalog/>

CATaLOG status pages

<http://catalog.nermal.net>