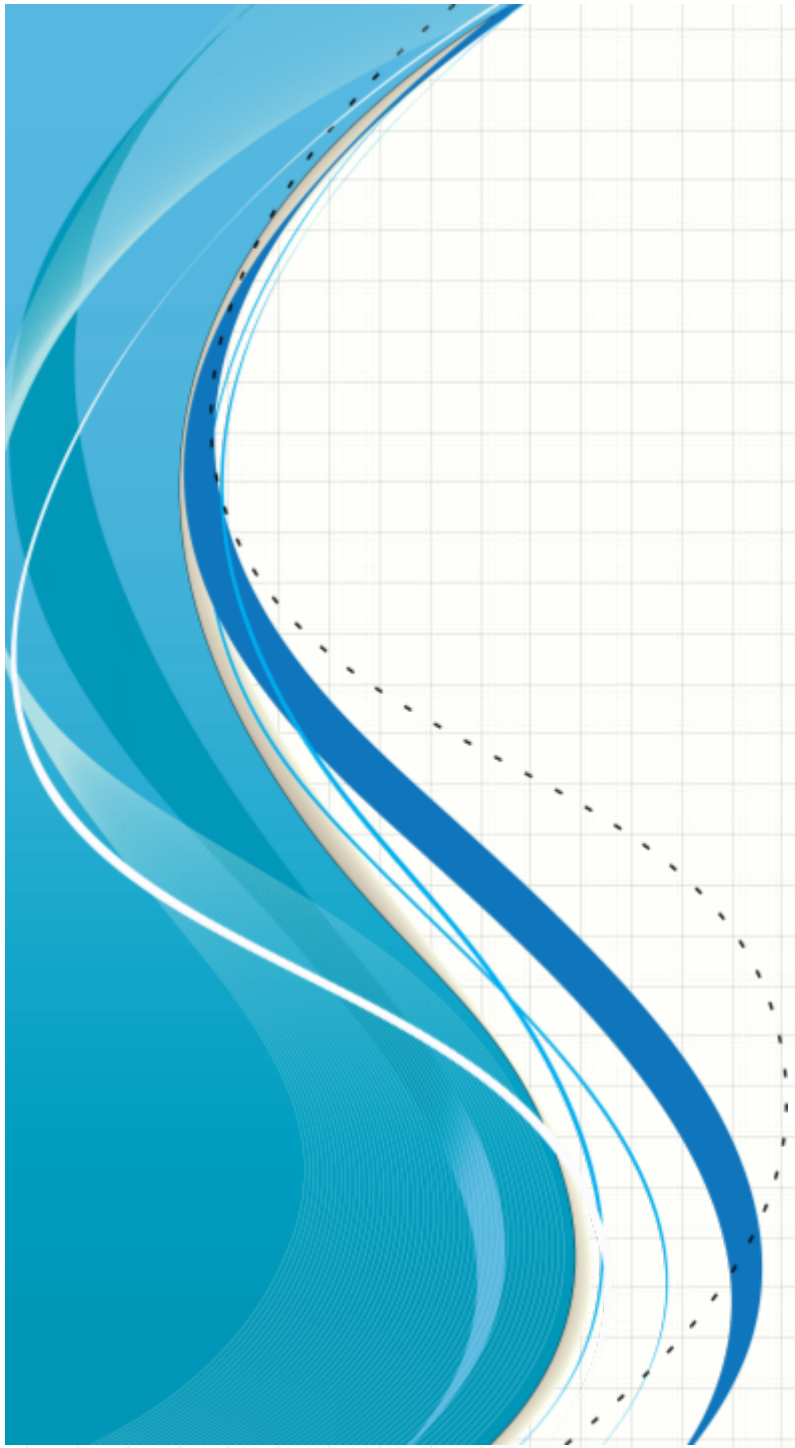


The Raspberry Pi

Ken Hewitt

MINOS 2012

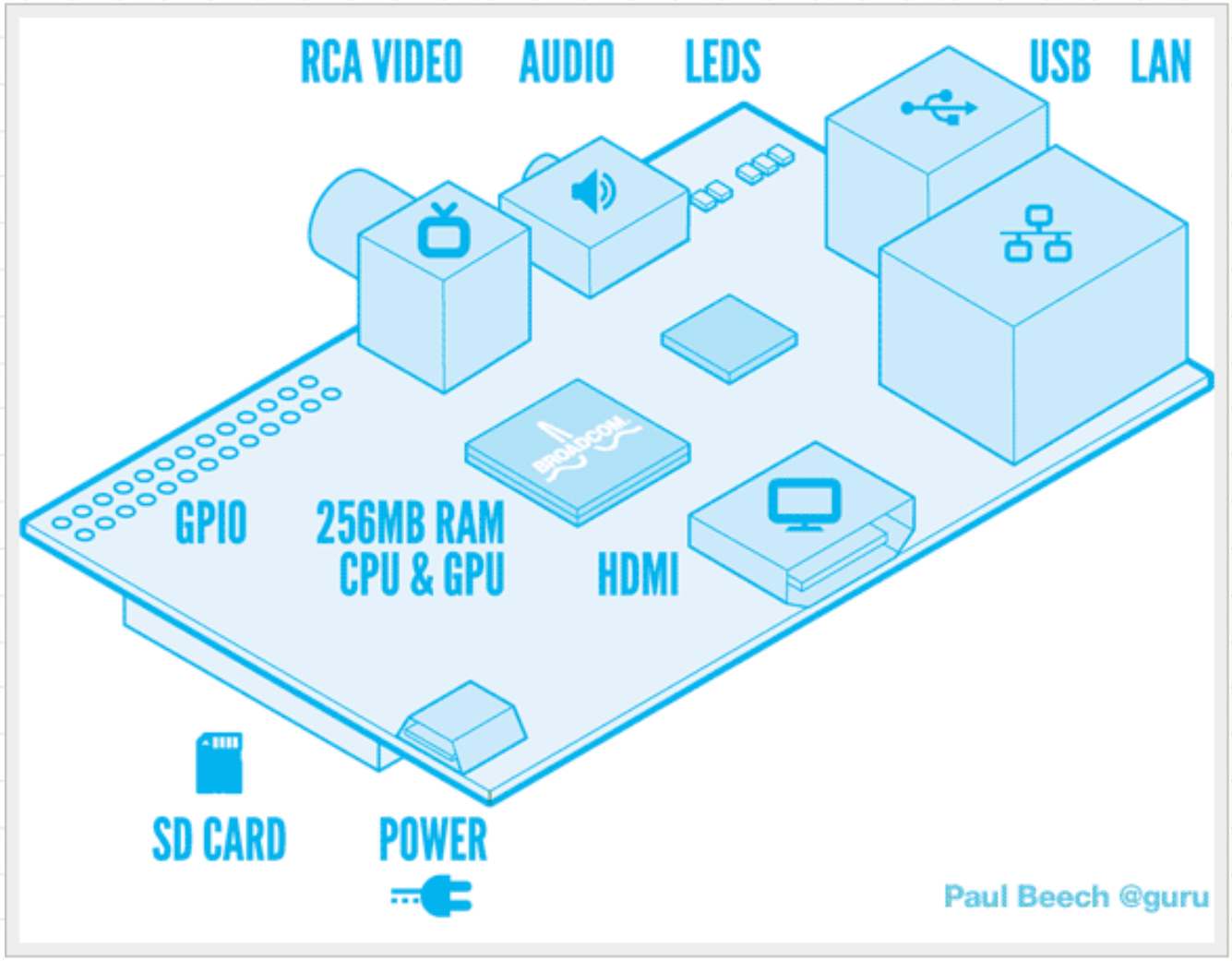
Ken Hewitt

MINOS 2012

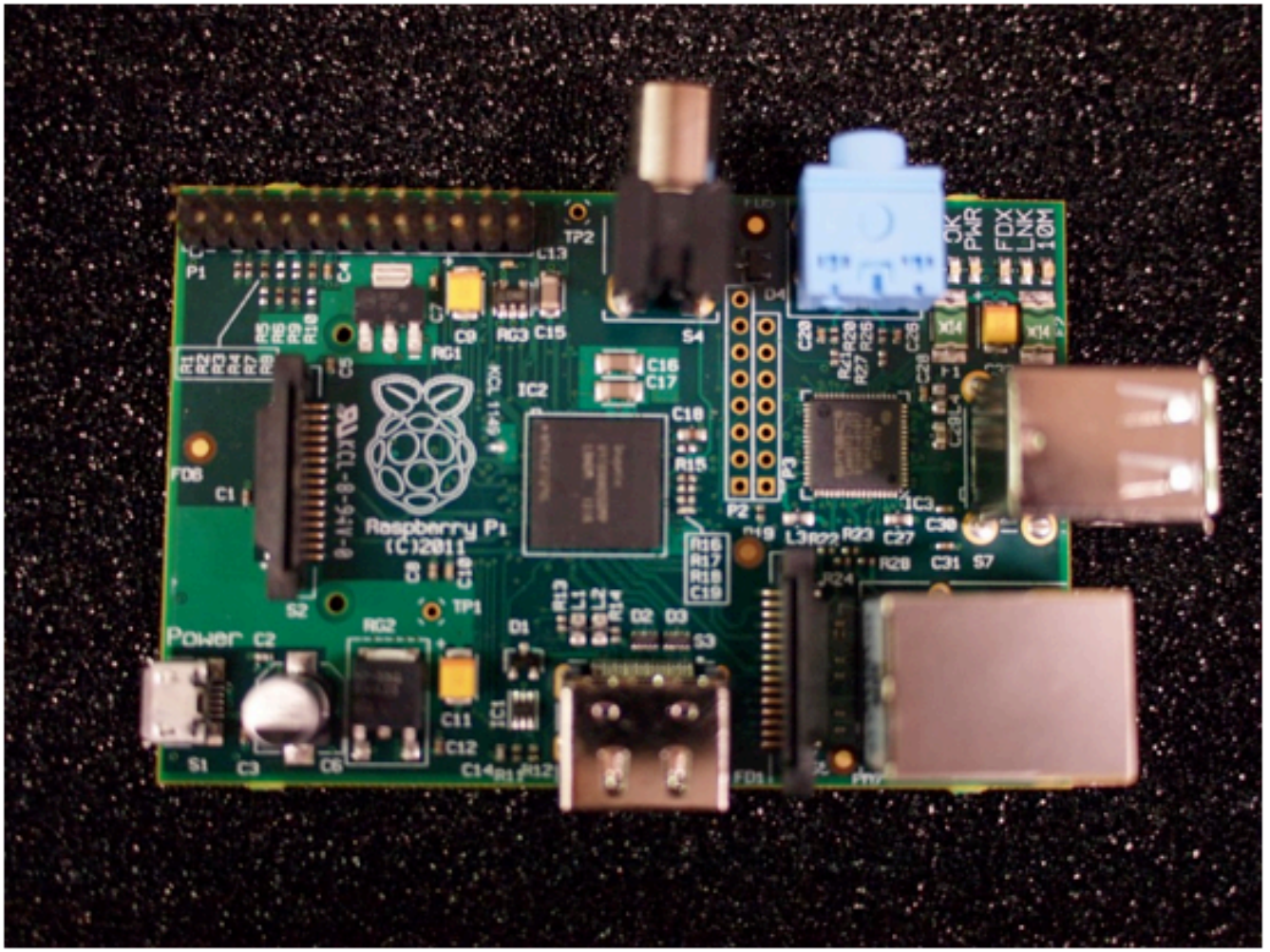
Why Not

- Only available for purchase from RS & FEC
- RS & FEC will not sell until tested for EMC conformance

Raspberry Pi, What is it



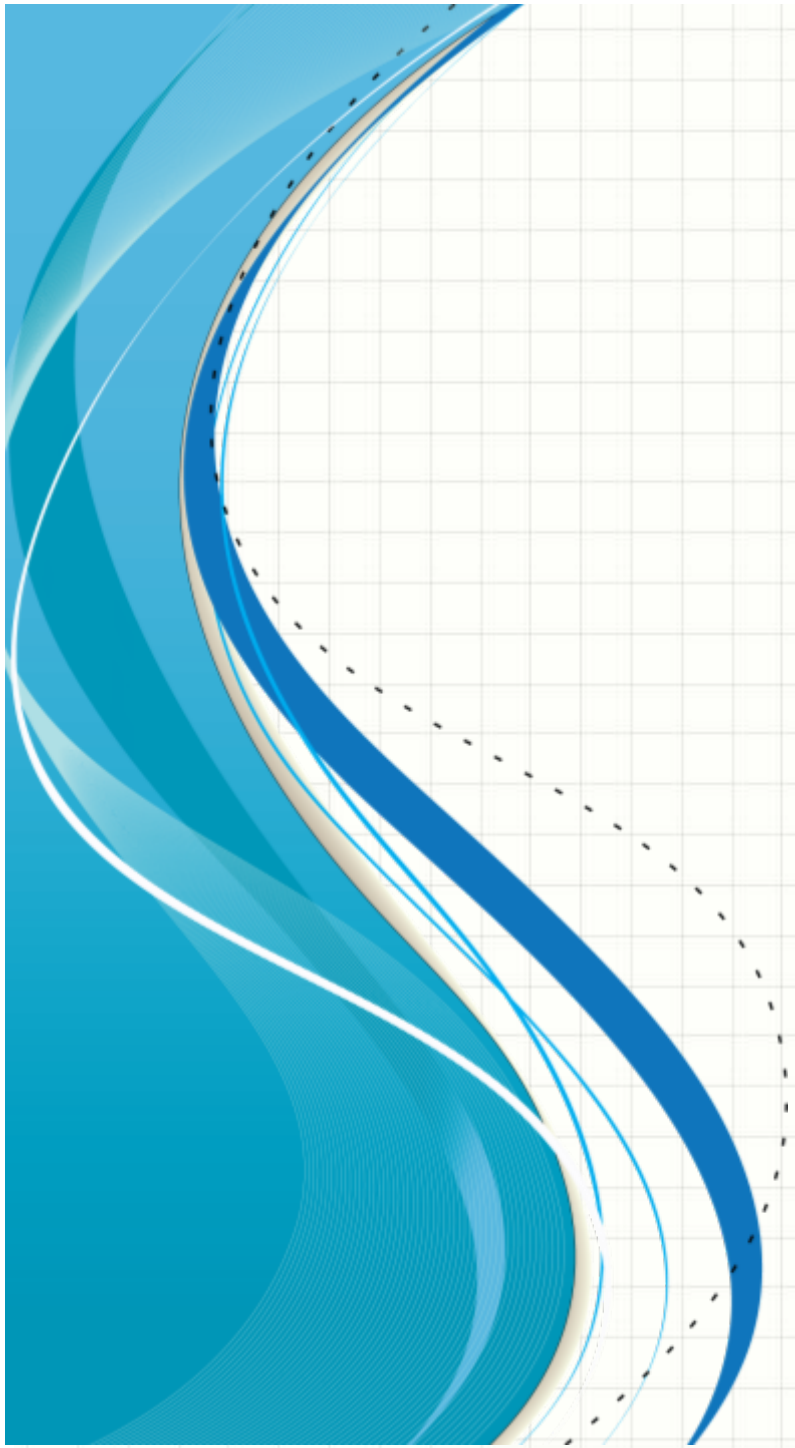
Raspberry Pi Model B



— Raspberry Pi model B

What about the Propeller

- Propeller 2 is coming ?
- Prop basic is available as freeware for programming Propellers.



Another Dimension

Ken Hewitt

MINOS 2012

I saw this in the local paper

This costs £400

This costs £2500

This got my interest….

- It seemed to be that things had moved on from the multi 1000's of £ that they cost a couple of years ago
- So I started surfing and was amazed at what I found, although not a micromouse, you might be interested in what I found.
- I found a thing called FPV (First Person View) there are a lot of these videos on YouTube

This got my interest….

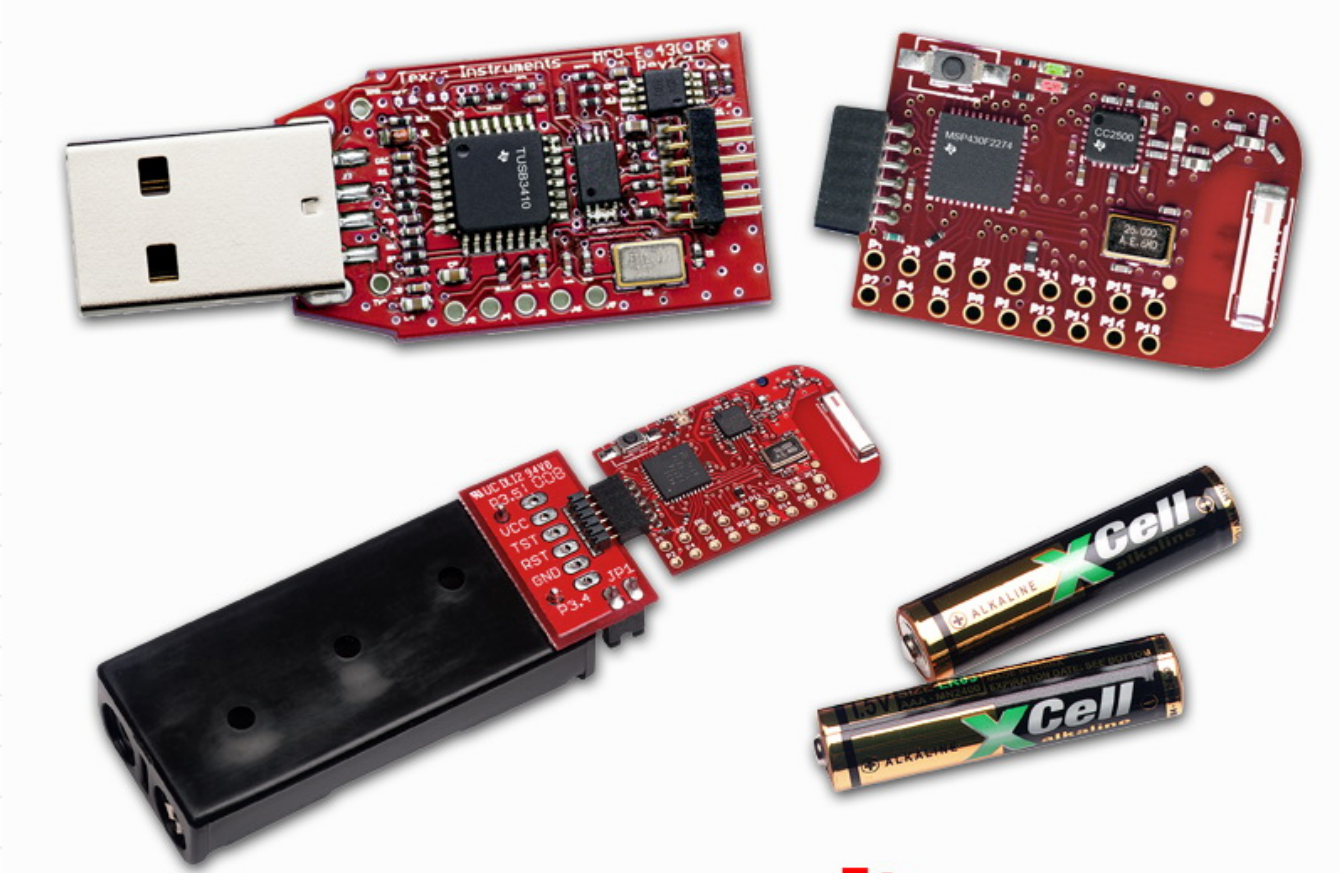
- I then found information about Micro quads, there was video of them but no one seemed to sell one.

This got my interest….

- So I started to look at what was available to build my own

First Controller Boards

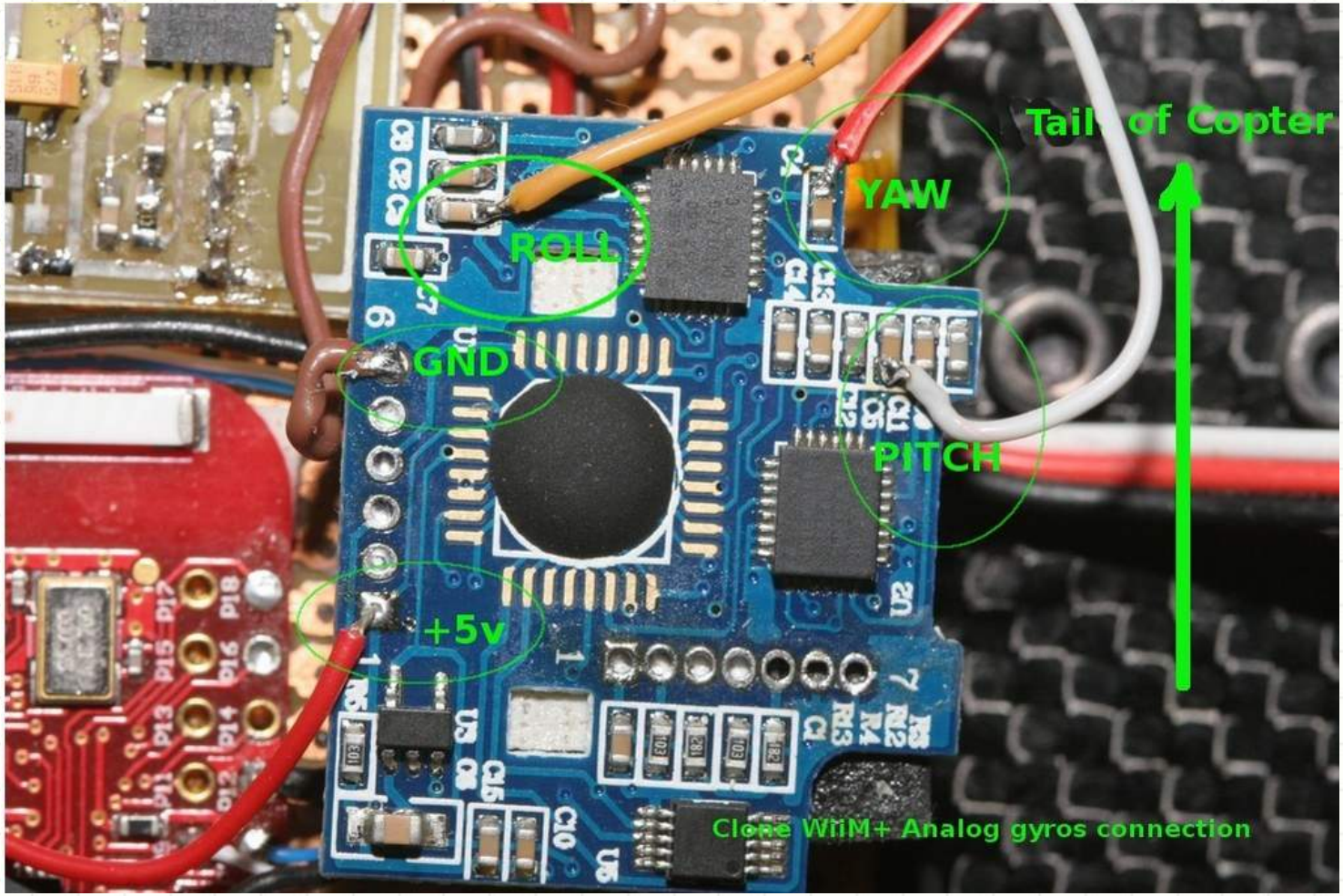
It Used this with a Wii PCB



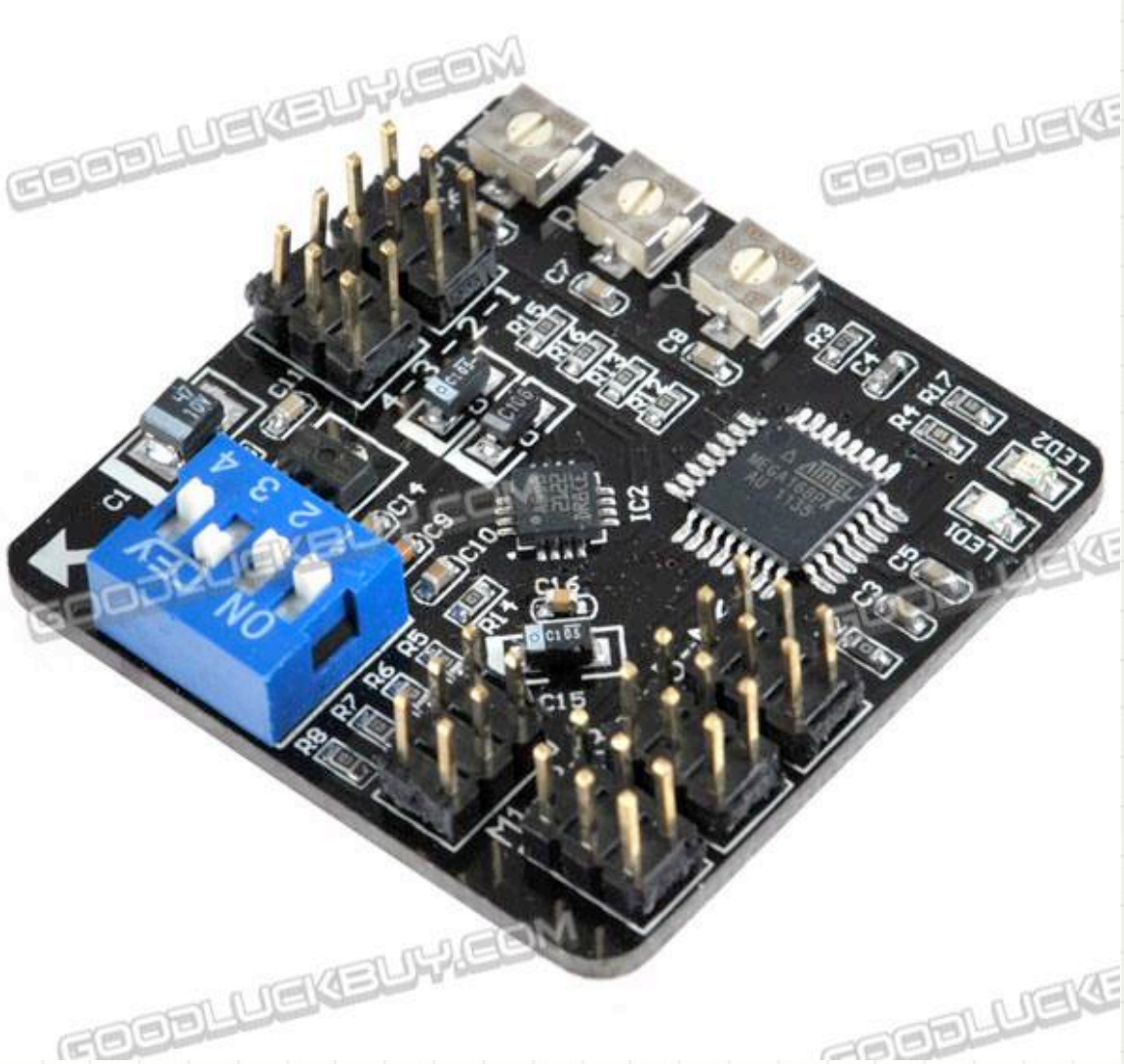
eZ430-RF2500
Wireless Development Tool

Texas Instruments

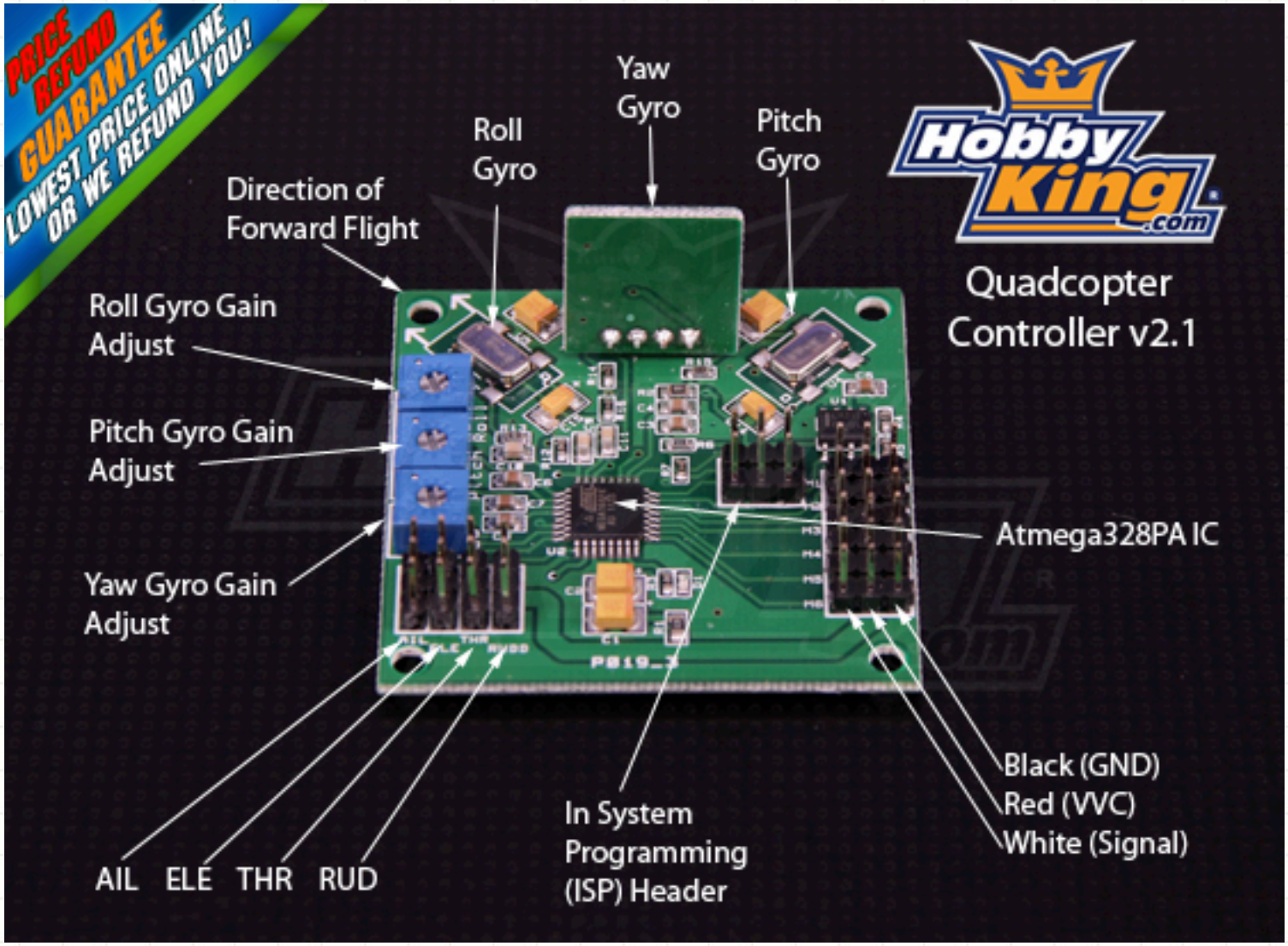
Wii 3 axis gyro PCB



This costs £28 is 40x40mm 8grams

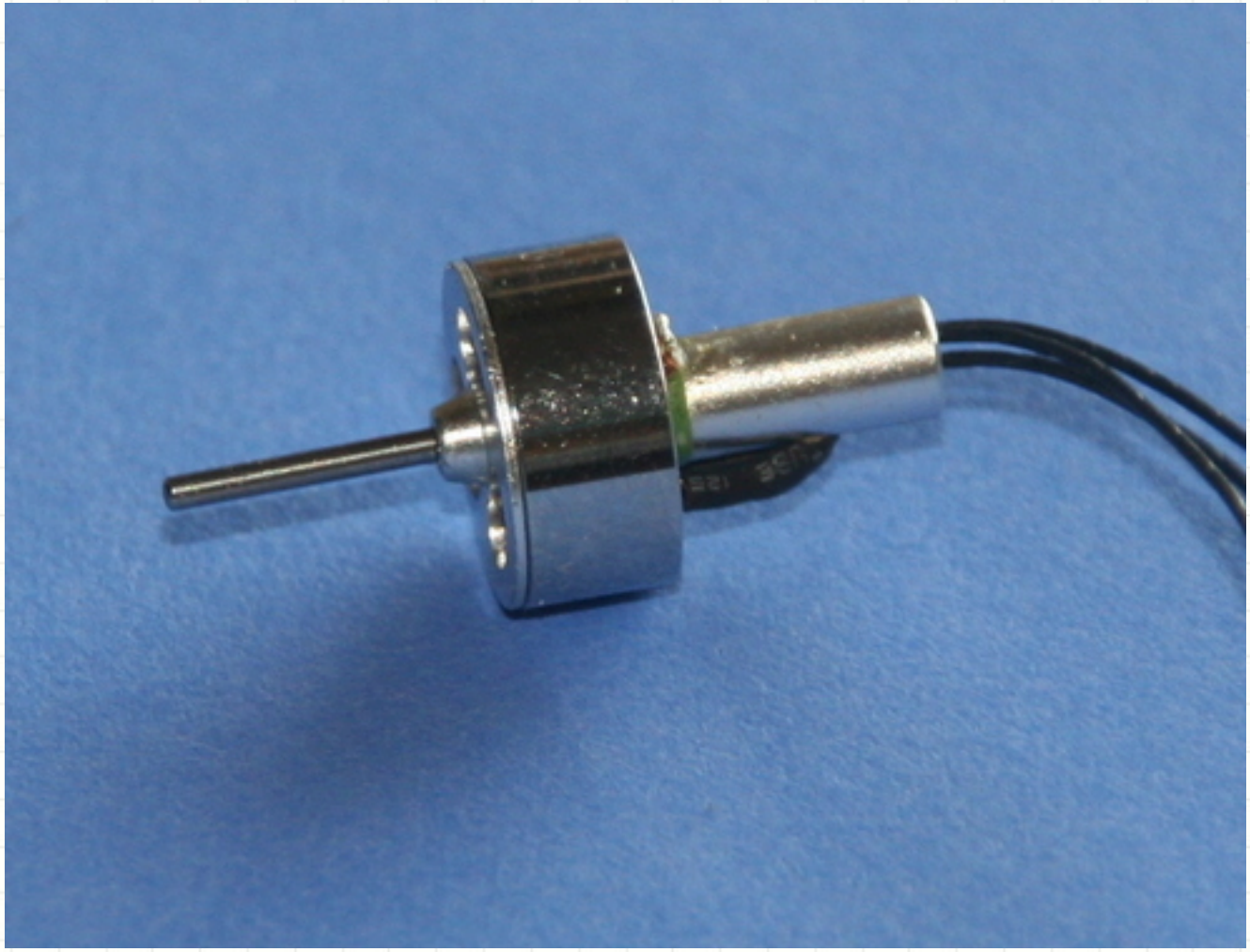


This costs $15 is 55x55mm 15g



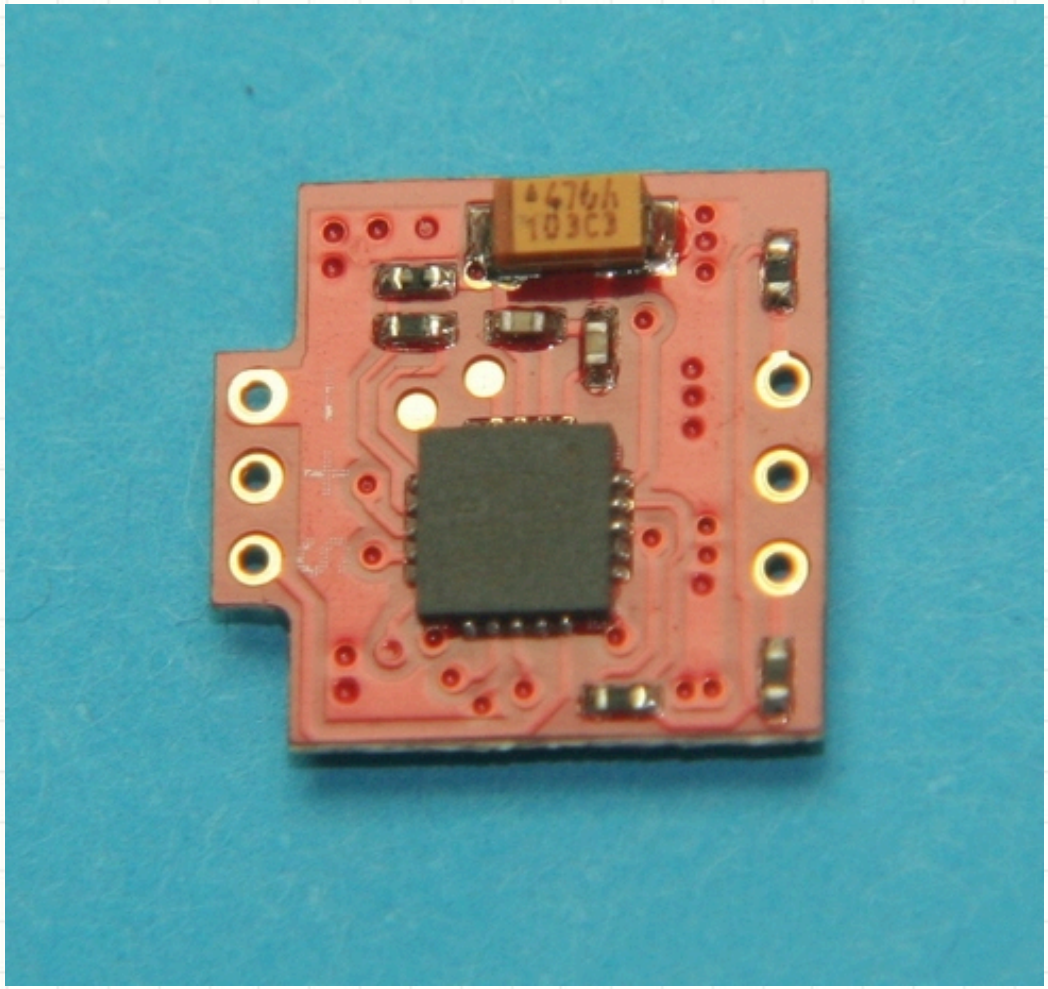
Next Motors

This costs £12 and is 2 grams



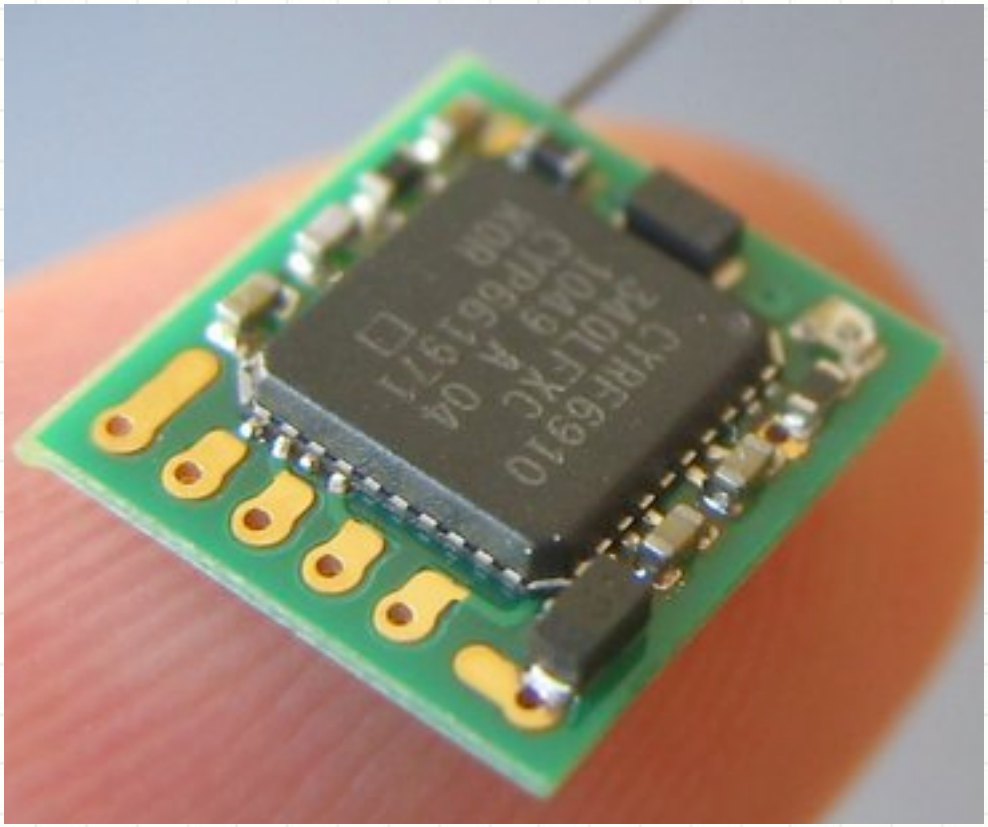
Then Speed Controllers

This costs £9 and is 0.3 grams



And Radio Control

This costs £25 and is 0.23 grams



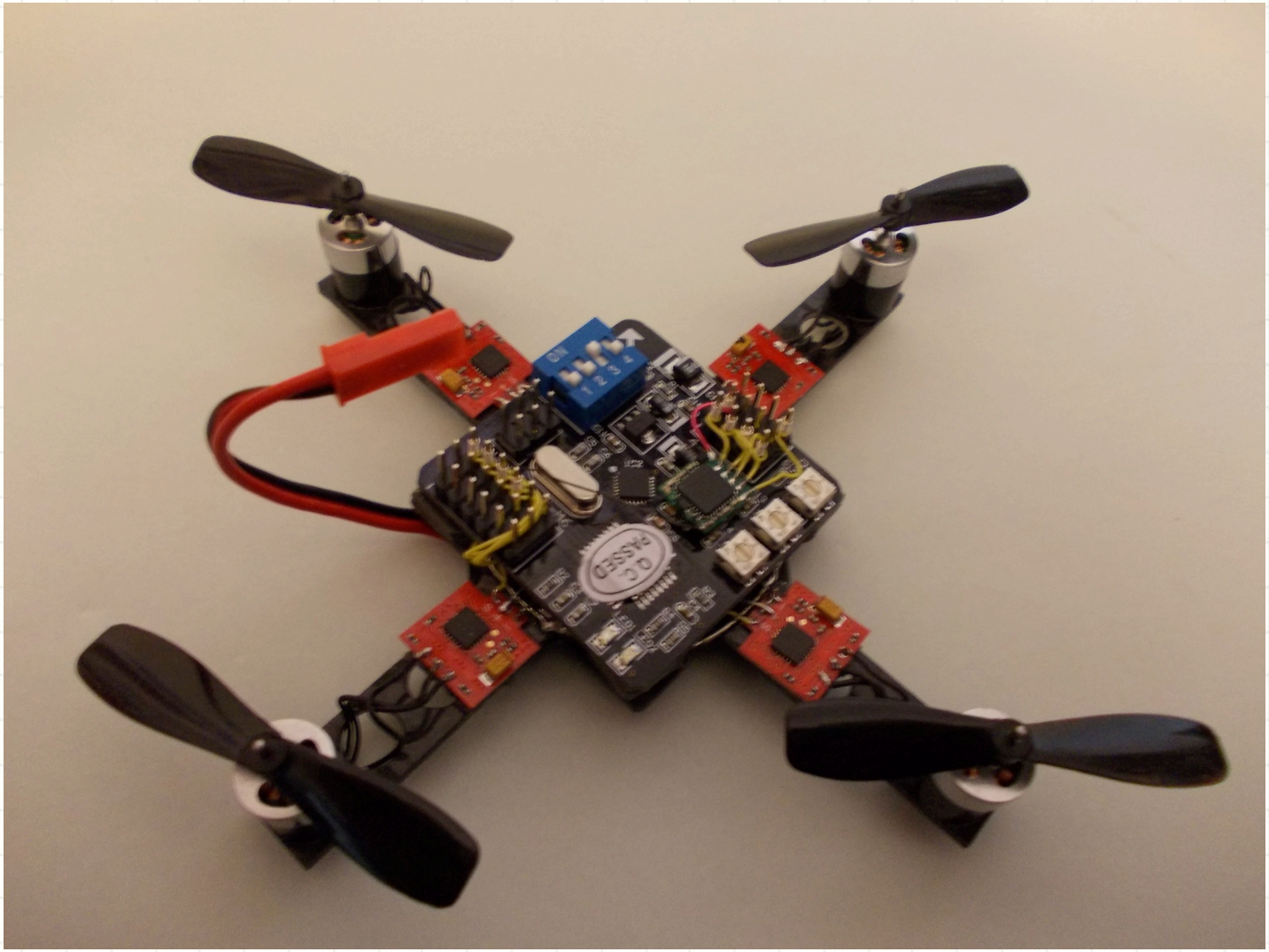
Rx31 no FET

Size: 9.9 x 9.3 x 2 mm

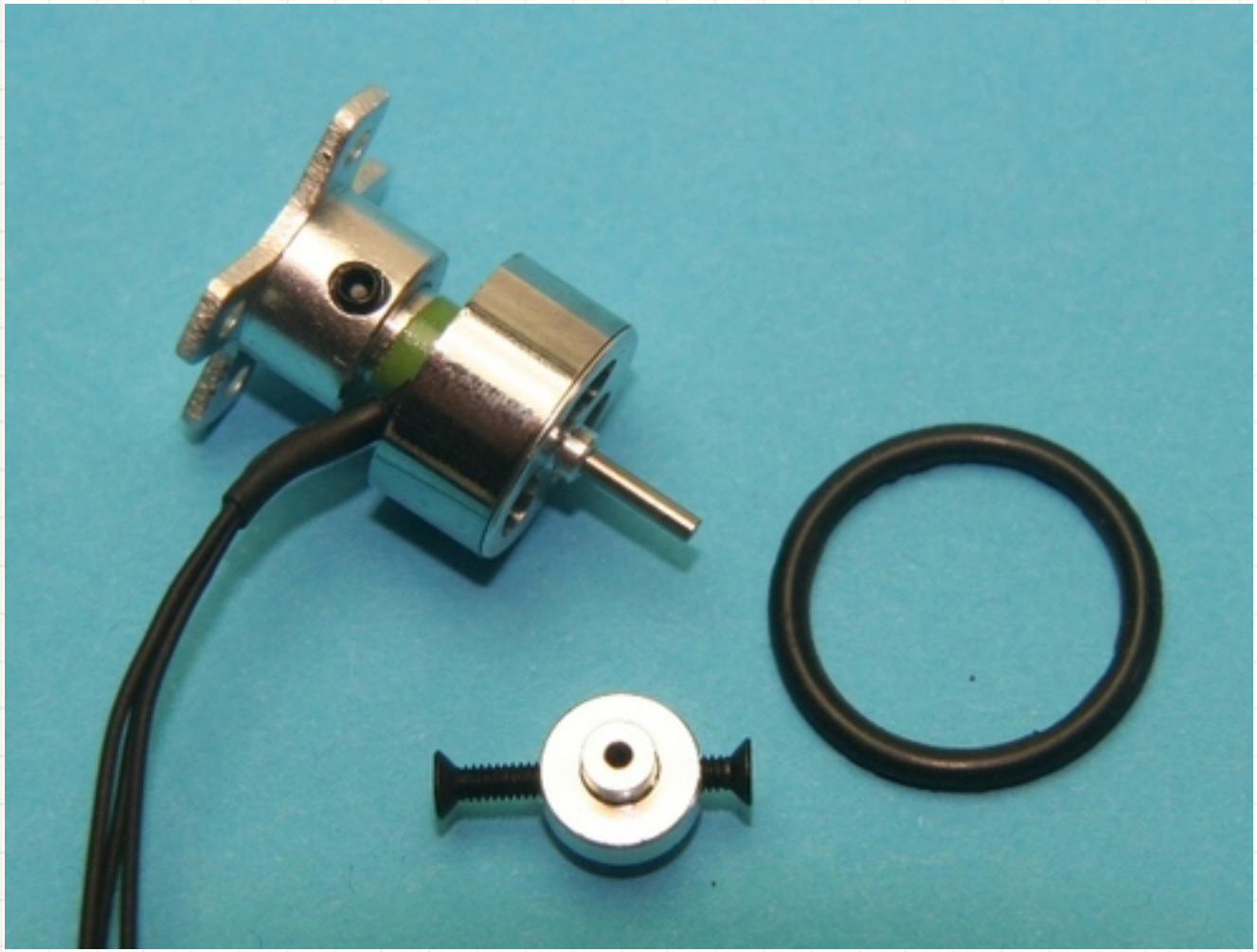
Weight: 0.23 gm

Put them all together and you Get This

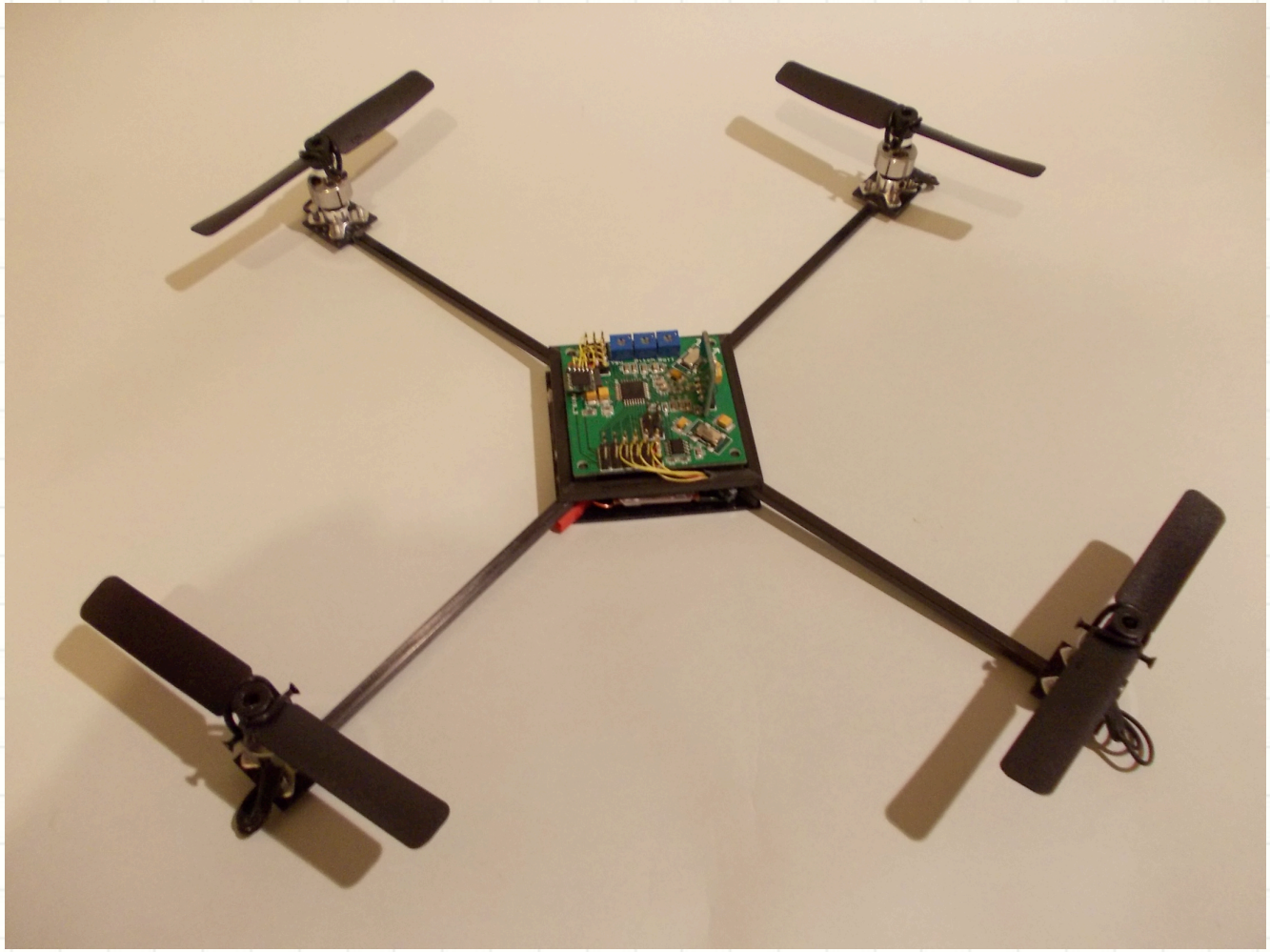
My Micro Quad Copter 29 grams



0r with 5 gram Motors



My Mini Quad Copter 89 grams

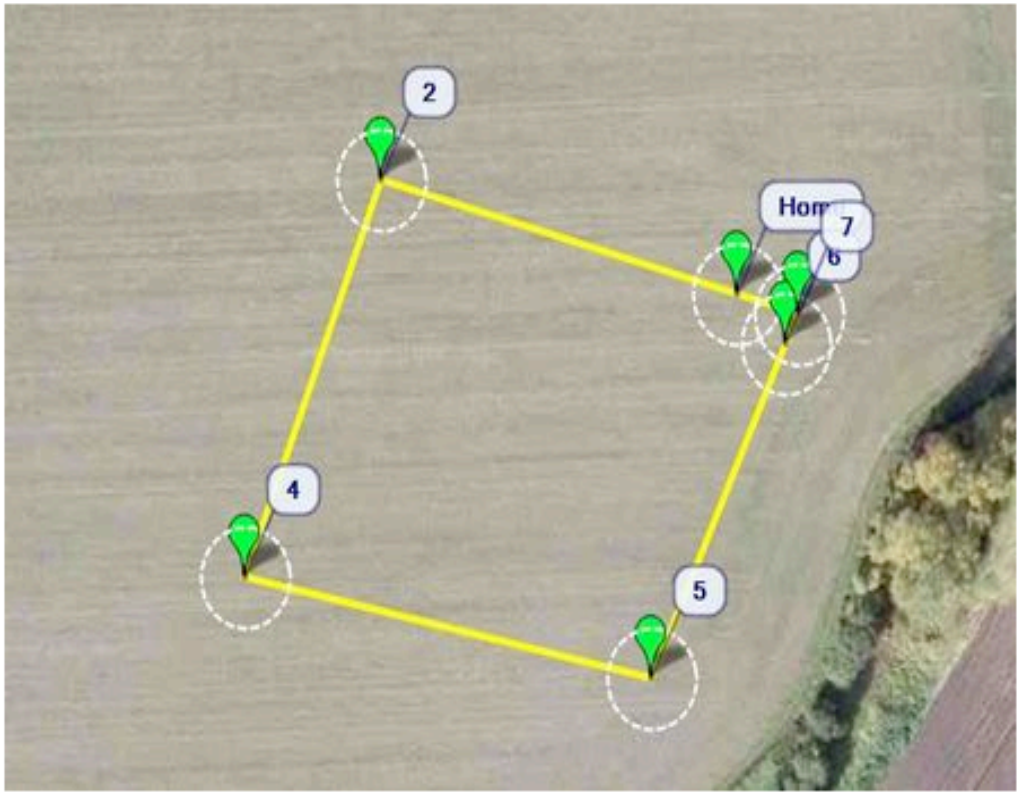


ArduCpoter open Source project

Main Features

- Impressive RC flight mode performance with auto altitude control and auto-leveling, allows almost anyone to fly with no hassle. With the 'simple flight mode', you just push the stick in the direction you want to travel, no need to worry about the multirotor orientation.
- Return home mode allows your Arducopter to return to its home location automatically
- Loiter anywhere, with the flick of a switch Aducopter will hold its current position
- Two way wireless telemetry allows you to monitor Arducopter and also plan missions via wireless connection on your laptop with a telemetry kit, all while you are flying.
- Support for hundreds of 3D way-points that will guide your Arducopter through any mission you can think of
- Automatic camera control, allowing you to point your camera at a point on the ground with a gimbal while you fly around
- Compatible with industry leading robotic standards such as ROS (Robot Operating System from Willow Garage) and MAVLink (communications protocol).

ArduCpoter plotting GPS route



This is a quick guide to show you how to plan your first arducopter mission. This will enable you to turn on your arducopter UAV, put it into auto mode, and then arducopter will take-off, then fly to a series of waypoint and land, all on its own!

This guide is just a basic introduction to planning a autonomous Arducopter mission, a future guide will be released showing some more advanced missions with arducopter, such as following a point with a camera, triggering a camera etc...

First Person View

- This could be of interest on a mouse in the maze, I have seen a video of this done.
- www.FPVhobby.com

Resources

- Site for small parts
  www.micronradiocontrol.co.uk
- ArduCopter site
  www.arducopter.co.uk
- FPV videos and Multi rotor info:
  www.rcexplorer.se
- FPV equipment:
  www.FPVhobby.com
- Cheap motors, ESCs, batteries Etc:
  www.hobbyking.com

QUESTIONS?