Polly want a Cracker

About the AR.Drone Parrot and other quadrotors

Dustin Webb
“A quadrotor, also called a quadrotor helicopter or quadrocopter, is an aircraft that is lifted and propelled by four rotors.” [http://en.wikipedia.org/wiki/Quadrotor](http://en.wikipedia.org/wiki/Quadrotor)
How do they fly?

Newton’s Third Law!

(a) Yaw (anticlockwise direction)  
(b) Yaw (clockwise direction)  
(c) Take-off or take-up  
(d) Roll (clockwise direction)  

(e) Pitch (anticlockwise direction)  
(f) Pitch (clockwise direction)  
(g) Land or take-down  
(h) Roll (anticlockwise direction)
Computer & Sensors

- 3 Axis Accelerometer - Linear Change
- 3 Axis Gyroscope - Rotational Change
- Barometric Pressure - Altitude

Cameras
  - Downward facing and low res
  - Forward facing HD
Control Methods

- Radio Control (RC)
- Autonomous control
  - ROS
  - Mavlink
  - Custom
Why?

- Games
- Entertainment
- Food delivery
- Video
  - Journalism
  - Athlete Tracking
- Search and Rescue
- Military
- Research
Games

Dog Fighting

Aliens Attack

Racing
Entertainment

GRASP Lab - James Bond

Meet Your Creator
Food Delivery
Video

Journalism
Search & Rescue

Swarms for:
- Survivor identification
- Temporary Cell System
Military

Surveillance

Hmmmmm

Bell-Boeing - Transport
Research

Mind control -- err, um, Brain Computer Interface

Innovative Mechanical Designs
Telerobotics Lab, UofU

Motion Planning & Cooperation

Control & Cooperation
Research?

Gamera 2 - World record flight at 50 seconds
Why not?!

Power - The bane of robotics...
I want one!

- **AR.Drone Parrot**
  http://ardrone2.parrot.com
- **ArduCopter**
  http://store.3drobotics.com
- **KickStarter**
  - **B the flying Car**
    http://www.kickstarter.com/projects/2017062404/b-go-beyond
  - **Spiri**
    http://www.kickstarter.com/projects/914887915/spiri
  - **Many more!**
Related

- Tricopters
- Hexarotors
- Octorotors

Is he seriously trying to start that thing?!