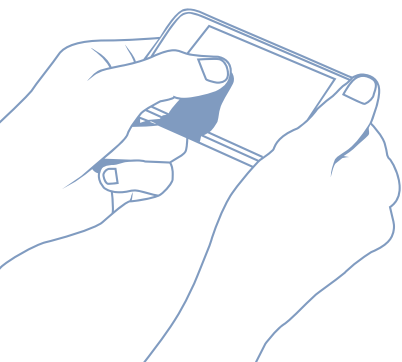


Parrot  
**AR.Drone**



 **WHEN VIDEO GAMES  
BECOME REALITY**

# Parrot AR.Drone

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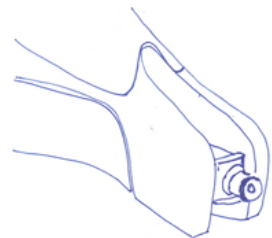
Imagine you are piloting an aircraft that flies like a dragonfly, and can see exactly what the pilot sees, thanks to video cameras. You can pilot it like a bird flies, leaning slightly. By tilting your iPhone® slightly, you can pilot the drone. Release it, and it stabilizes in an instant.

Flying a robot is a unique experience. This mechanical bird uses its powerful on-board computer to detect targets which will become the enemies in a video game. All of the different elements complement each other: piloting the drone, and real elements, like the trees, folds of the land, wind, shapes that you recognize etc., to create a new genre: Augmented Reality video games

The AR.drone project is the result of an exceptional technological development: The quadcopter: a helicopter that is extremely easy to fly. It is particularly unstable, but can be controlled by means of micromechanical accelerometers, combined with an ultra-powerful embedded Linux platform intended for mobile phones, and two video cameras. All of these technologies have been combined for the first time by Parrot's engineers to create the first fully-integrated Augmented Reality device: the Parrot AR.Drone.

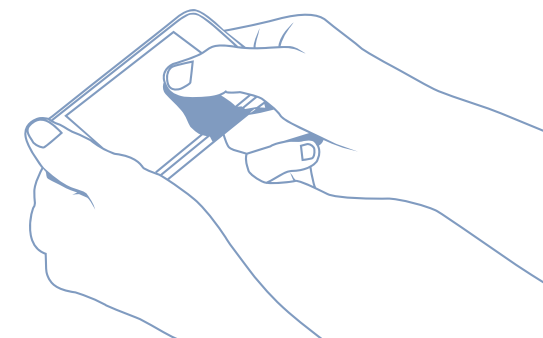
Parrot will make available its AR.Drone platform to software developers at the CES 2010 trade show. The source code of the game demos presented at CES is available as open source software. It is already possible to join the community of software developers via the website [www.ardrone.org](http://www.ardrone.org).

Henri Seydoux, CEO Parrot SA.



**FIRST QUADROPTER THAT  
CAN BE CONTROLLED BY AN  
iPhone®/iPod TOUCH®**

Thanks to its on-board Wi-Fi system, you can control the Parrot AR.Drone using an iPhone® or iPod Touch®. It was initially designed for the Apple platform and will be also available on other platforms.





## **INTUITIVE PILOTING**



The Smart Parrot Piloting Software (SPPS) includes an inertial unit, ultrasound sensors and a vertical camera under the cockpit of the AR.Drone. The combination of these elements which are controlled by an autopilot program allows extremely accurate piloting of the quadricopter. The AR.Drone detects the movements of your iPhone®/iPod Touch® (to go up, down, turn, reverse, go forwards etc.). Anyone can pilot the AR.Drone: it is extremely simple to use.



## **PLAY INSIDE OR OUTSIDE**

The Parrot AR.Drone has been designed for both inside and outside use. You can adapt it to any game situation using the two hulls provided. The full hull shield protects the AR.Drone from impacts that occur during wild battles against enemies hidden in the rooms of the house. The streamlined hull is aerodynamic, allowing greater control outside.



## **OPEN SOURCE DEVELOPMENT PLATFORM**

Software developers can take part in creating applications via the open source development platform that we have provided for them. To access it, visit [www.ardrone.org](http://www.ardrone.org)



## **PLAY WITH OTHER USERS VIA A WI-FI NETWORK**

Another major feature is the use of several drones on a network. Thanks to Wi-Fi, players can create a network to play against each other. One of the game demos presented makes it possible for the first time to have a battle between two radio-controlled AR.Drone.

## **EXPERIENCE AUGMENTED REALITY**



Every game is unique, whether inside or outside. Software developers will be able to use the front camera of the AR.Drone to create Augmented Reality games. The AR.Drone software includes Augmented Reality functions such as detecting other AR.Drone in flight, and detecting and positioning markers on the ground. Depending on the applications downloaded, it opens up a whole new world to users: they can take part in wild races in their own garden, or fight against aliens hidden in their living room.

## ▣ A LIGHT CONSTRUCTION MADE OF CARBON AND HIGH RESISTANCE PLASTIC

The AR.Drone has been designed using very light and robust materials. The main structure is made of carbon-fibre tubes and fibre-reinforced PA66 plastic parts. The hulls are injected with EPP.

### AERONAUTIC AND STRUCTURE

- ▣ High-efficiency propellers (specially designed for the Parrot AR.Drone)
- ▣ Carbon tube structure

### MOTORS AND ENERGY

- ▣ 4 brushed or brushless motors, depending on the version (3,500 rpm, power: 15W)
- ▣ Lithium polymer battery (3 cells, 11,1V, 1000 mAh)
- ▣ Discharge capacity: 15C
- ▣ Battery charging time: 90 minutes

### FRONT CAMERA:

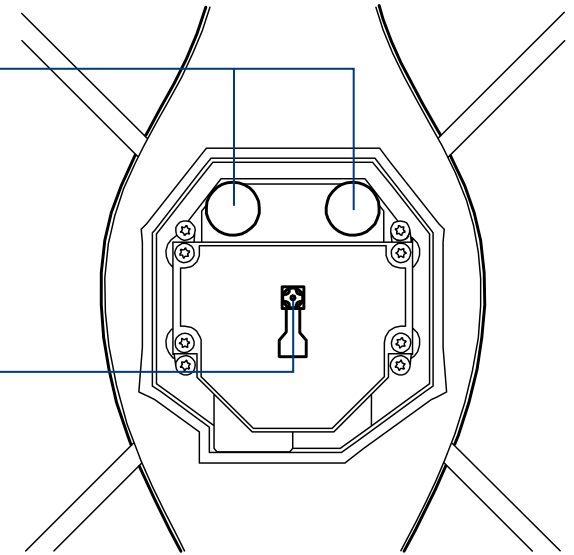
- ▣ 93° wide-angle diagonal lens camera, CMOS sensor
- ▣ Encoding and streaming of images on iPhone®
- ▣ Video frequency: 15 fps
- ▣ Camera resolution 640x480 pixels (VGA)
- ▣ 1D tag detection
  - Validation of shots fired at enemy drones
  - Estimate of distance
  - Detection distance: 5 metres
- ▣ 2D tag detection
  - Positioning of virtual objects
  - Calculation of markers of virtual objects
  - Detection distance: 5 metres
- ▣ Video feedback on the iPhone® screen

### ULTRASOUND ALTIMETER

- ▣ Emission frequency: - 40kHz
- ▣ Range 6 metres
- ▣ Vertical stabilization

### VERTICAL CAMERA: HIGH SPEED CAMERA

- ▣ 64° diagonal lens, CMOS sensor
- ▣ Video frequency: 60 fps
- ▣ Allows stabilization even with a light wind
- ▣ Resolution: 176x144 pixels (QCIF)



## SPÉCIFICATIONS

- ▣ Safety system (automatic locking of propellers in the event of contact)
- ▣ Running speed: 5 m/s; 18 km/h
- ▣ Weight:
  - 360 g without hull
  - 400 g with the hull
- ▣ Running time 15 minutes

## DIMENSIONS :

- ▣ With hull: 52,5x51,5cm
- ▣ Without hull: 45x29cm





[twitter.com/ardrone](https://twitter.com/ardrone)

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*Wi-Fi® is a trademark of the Wi-Fi Alliance.*

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