ArduPilot development news

A busy year!

- Over the last year our patch rate has remained at about 10 patches a day
  - plus lots more in PX4Firmware and PX4NuttX!
- More committers
  - we've had about 80 people contribute patches, including lots of new developers
- More code
  - ArduPilot git tree has grown to about 700k lines of code

System Level Development

- finally dropped APM1/APM2 from copter
  - lives on for plane/rover for now
- Linux port is flying, with several hardware options
- Much improved SITL simulation
  - more models on the way
- Mavlink routing support
  - helps a lot with companion computers
- Great collaboration with PX4!
  - lots of cooperative development
  - Much better NuttX performance

Companion Computers

- Much more popular now!
  - used for imaging, high level control and advanced communications
  - Improved MAVLink routing really helps
  - Low cost multi-core ARM boards very widely available
  - DroneAPI/DroneKit perfect to take advantage of extra computing capacity
  - Leverage existing ROS modules

Core Algorithms

- EKF has now come of age
  - much greater robustness
  - indoor/outdoor mode
  - optical flow support
  - completely replaced Inav on copter
- New IMU strategy
  - much faster sampling and better filtering
  - big improvement for high vibration systems

Sensor Developments

- UAVCAN support
  - very bright future for UAVCAN sensors and peripherals
  - great collaboration with Pavel and PX4 project
- Lidars
  - low cost Lidars now widely available
  - huge difference for fixed wing landing
  - scanning Lidars being developed
- Sensor failure improvements
  - much more robust handling of sensor errors

Community Interfaces

- Split off support forum
  - big improvement over old release threads
- Better communitcations
  - gitter for IM
  - much better website design
  - wider use of mumble
- Developer interfaces
  - DroneKit and DroneAPI will make application development much easier

What's next?

- Some personal favourites
  - SITL for windows
  - better logging via companion computers
  - NuttX level crash dump analysis
  - TiltRotor and other hybrid aircraft
  - terrain following for copter

What do you want to see in ArduPilot?