RESEARCHDRONES
DISCOVERING NEW PERSPECTIVES

Documentation and Software

Software

ArduPilot Mega

- **ArduPilot Mega Firmware**: Best way to use it is through Mission Planner's upload functionality. Be careful, Firmware updates are released early and often, they might be buggy. Please use the tested and recommended firmware from ResearchDrones. For tinkerers, the source code can be found here: https://code.google.com/p/ardupilot-mega/downloads/list

- **Mission Planner**: Also open source software for win32/64 only. Always make sure to test you MP version after an update before going into the field. Released early and often, it might be buggy sometimes, bugfixes come quick (sometimes within hours) so get a new version through the update feature if a bug is discovered. We recommend to settle with a working version for some time. Binaries and source code can be found here: https://code.google.com/p/ardupilot-mega/downloads/list

- **Arduino IDE**: If you want to modify/compile the firmware yourself and don't have a build environment installed on your computer you might want to use a modified version of Arduino IDE (no admin rights required, just unzip and start coding/compile/uploading):
    - Windows: https://ardupilot-mega.googlecode.com/files/ArduPilot-Arduino-1.0.3-windows.zip
    - OSX: https://ardupilot-mega.googlecode.com/files/ArduPilot-Arduino-1.0.3-Mac.zip

Post Processing / Stitching

- **Pix4D**: http://pix4d.com/
- **DroneMapper online Service**: http://dronemapper.com/
- **kolor autopano giga**: http://www.kolor.com/image-stitching-software-autopano-giga.html
- **Agisoft PhotoScan**: http://www.agisoft.ru/products
- **Synchronizing APM logs with Video**: http://gps4sport.com/

Simulators

- **X-Plane** (Win/OSX/Linux/iOS/Android): A real aicraft simulator (not r/c) which is often used for HIL or SITL testing (Hardware In the Loop or Software In The Loop) http://www.x-plane.com/
- **FlightGear** (Win/OSX/Linux/*BSD/Solaris): An open source flight simulator, free of charge http://www.flightgear.org/
- **RealFlight** (Windows): A sophisticated R/C simulator. An r/c transmitter is usually used as input device http://www.realflight.com/
- **Absolute RC Plane Sim** (Android): Smartphone/Table r/c sim. Input device is the touchscreen and therefore not very realistic (also, the flight model is not so close to the real deal) https://play.google.com/store/apps/details?id=com.rcflightsim.cvplane2
- **Leo's R/C Simulator** (Android): Another android r/c sim, has a more realistic flight model https://play.google.com/store/apps/details?id=leofs.android.free
- **Rc Plane 2** (iOS): An iPhone/iPad r/c sim, also with touchscreen input which doesn't give a too realistic "touch&feel" https://itunes.apple.com/en/app/rc-plane-2/id442082328?mt=8

Links to Documentation

- **ArduPilot Mega**:
  - Wiki: https://code.google.com/p/ardupilot-mega/wiki/home
  - Forum: http://diydrones.com/forum/categories/arduplane-2-x-software/listForCategory
  - User Group: http://diydrones.com/group/apmusergroup

- **Canon Hack Development Kit (CHDK)**: http://chdk.wikia.com/wiki/CHDK
  - Detailed CHDK firmware installation instructions http://conservationdrones.files.wordpress.com/2013/01/dronemapper_chdk.pdf
  - Detailed graphical instructions on optimal CHDK settings http://conservationdrones.files.wordpress.com/2013/01/dronemapper_chdk_settings-screenshots.pdf
  - Guidelines on aerial data collection and flight planning http://conservationdrones.files.wordpress.com/2013/01/dronemapper_aerialdatac

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