

# **XOpenPilot (*aka* OpexPilot): eXtensible, Open, and portable auto pilot for education, experimentation, prototyping, and real world applications**

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The goal of this (long term) project is to design and develop an open, extensible and portable auto pilot for education, experimentation, prototyping, and real world applications.

The difference to existing systems is the number of contexts it will be able to adapt to. Among these are:

- Education: OpexPilot will make it possible to help students and real world practitioners to understand the basics of autopilots (both in terms of hardware and software) and to understand how it behaves in operation by interacting with it and with its environment.
- Experimentation: OpexPilot will make it possible to experiment with (possibly new) hardware components, algorithms or pieces of software. For instance, it will be possible to combine the use of a simulated software gyroscope with a physical accelerometer (hardware in the loop approach). It should also support the simulation of failures at both hardware and software levels.
- Prototyping: OpexPilot will make it possible to help in prototyping hardware components (by first simulating them and their low level characteristics for instance) and applications.
- Real world applications: it will be possible to embed OpexPilot in real world systems and to use it to run real world scenarios.

OpexPilot should also support additional features that are usually not offered by standard auto pilots such as: on the flight scenario modification (predefined routes, etc.), self-calibration, multi-standard support, resilience to the loss of some sensing capacities, etc.