Quadrotor 3D intuitive flying

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Introduction
Actual research topics in The Rotorcraft-based Unmanned Aerial Vehicle (R-UAV) platform are mostly related to problems such as navigation algorithms for swarms of vehicles and autonomous behavior. This thesis is focused on a whole different, yet important task: To find an intuitive way for R-UAV remote human control.

Evaluation
The aforementioned control devices were used by 19 volunteers to perform two simple navigation scenarios. We measured the time needed for each device to fulfill every task, including the number of unwanted collisions with obstacles, as well as the pilot's satisfaction with it.

Results
Green: inexperienced pilots, Blue: experienced pilots

Conclusion
According to the results of the experiment, joystick and smartphone proved to be less intuitive and effective among all pilots, especially the inexperienced. Gamepad seemed to be most usable for experienced pilots, although the inexperienced had problems distributing control between two hands, as we expected. 3DConnection SpaceNavigator and Novint Falcon were rated the best devices for inexperienced users.