* Background of controlling
  + stick controller since early 1900
    - bad learning curve
    - not sufficient for nowadays purposes
  + triggers, switchers, dial, ...
* Unmanned Aerial Vehicles (UAVs)
  + military uses
  + non-military uses
    - archeology
    - delivery
  + evolved last years
    - cost reduction
    - technology improvements
  + current controlling
    - person view
    - long learning
    - sensor control
  + potential
    - terrain independent
    - reach remote places
  + State of the art
    - motion control of wheelchair for dancing
    - video Modelling and Social Robotics
  + Not covered usage of drones yet
    - experiential learning
    - remote learning
    - shared experience of sports and cultural activities
  + Difficulties
    - remote system to control
    - limited battery life
    - UAV maintenance
    - potential safety issues
      * losing radio connection
    - -> commercial trying to solve
* Virtual reality
  + History
    - First military for pilot training
    - Later non-military
      * Surgery practicing
      * Gaming
  + Current commercial solutions
    - Microsoft Xbox Kinect
    - Sony PlayStation Eye/Move
    - Nintendo Wii
    - Fusion Camera System
  + State of the art
    - head tracking solution for tele-operation of an AR Drone
      * synchronized optical trackers
      * follow the user's gaze
    - head-tracking system, combined with a VR helmet
      * seeing what the robot sees
    - problems
      * color based motion tracking of head
      * image processing to detect motion
* Oculus Rift (OR)
  + only the on-board sensors
  + two main components
    - ROS architecture
      * processes that performs computation combined into a graph and communicate with one another
      * several nodes
        + to control a laser rangefinder
        + wheel motors
        + localization
        + path planning
        + to provide a graphical system view
    - AR Drone SDK’s
  + With certain threshold 6 degree-of-freedom
  + altitude and speed controls
    - Arduino Uno board publishing values from a Wii Nunchuck controller
  + Testing
    - Focus at learning curve, emotions, verbal output, needed assistance
  + Evaluation
    - 50 m range
    - Min 10 fps
    - Intuitive control
      * Problem in tight spaces
        + monocular to stereo depth conversion problem
    - Experts preferred a stick controller