- 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