KINGDOM OF SAUDI ARABIA
Ministry of Higher Education
Prince Sultan University
College of Computer and Information Sciences

Drone Pilot Training Program

المملكة العربية السعودية
وزارة التعليم العالي
جامعة الأمير سلطان
كلية علوم الحاسب والمعلومات

Activity: Drone Simulation Lab	**Trainer:** Dr. Anis Koubaa
Training: Drone Piloting	**Term:** April 2017
Duration: 30 minutes	**Number of pages:** 2 pages

1. Objectives

The objective of this hands-on lab is to practice about SITL simulator and how to define missions and control drones in simulation mode using the terminal-based ground station MAVProxy, and a graphical ground station, namely APM Planner or QGroundControl.

2. References

Use the reference below to find the commands needed for MAVProxy, and some information about the SITL simulator.

- MAVProxy http://ardupilot.github.io/MAVProxy/html/uav_configuration/index.html
- SITL http://ardupilot.org/dev/docs/sitl-simulator-software-in-the-loop.html

3. Lab Instructions

Execute the following instruction. For MAVProxy commands refer to the link in the reference above.

1. Open SITL Simulation
2. Open your ground station
3. Add an output stream to your ground station
4. **Using MAVProxy**
    a. Identify the system id of your drone
    b. Change the mode to stabilize
    c. Find all parameters of the GPS (use keyword GPS)
    d. Find all parameters of the battery (use keyword BATT)
    e. Change flight mode to GUIDED if it is not
    f. Arm the drone
    g. Takeoff the drone 10 meters
    h. Execute the autonomous mission
    i. Land the drone
    j. Change mode to Stabilize
5. **Using the Ground Station**
    a. Identify the system id of your drone (you need to go the parameters menu and search for sysid)
    b. Change the mode to stabilize
    c. Find all parameters of the GPS (use keyword GPS)
    d. Find all parameters of the battery (use keyword BATT)
    e. Change flight mode to GUIDED if it is not
    f. Arm the drone
    g. Takeoff the drone 10 meters
    h. Execute the autonomous mission
    i. Land the drone

j. Change mode to Stabilize`