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SLA Landing Application: Description and Installation

Version 1.01

8/1/2018

Background

The landing application runs on the SLA application processor and subscribes to landing position messages from the SLA. Landing position messages are generated when enabled on the SLA and the Sightline landing target is in view. The landing application uses angles and distance to the target along with vehicle state information from the autopilot to generate steering commands to the autopilot. The basic communications paths are shown in *Figure 1*.

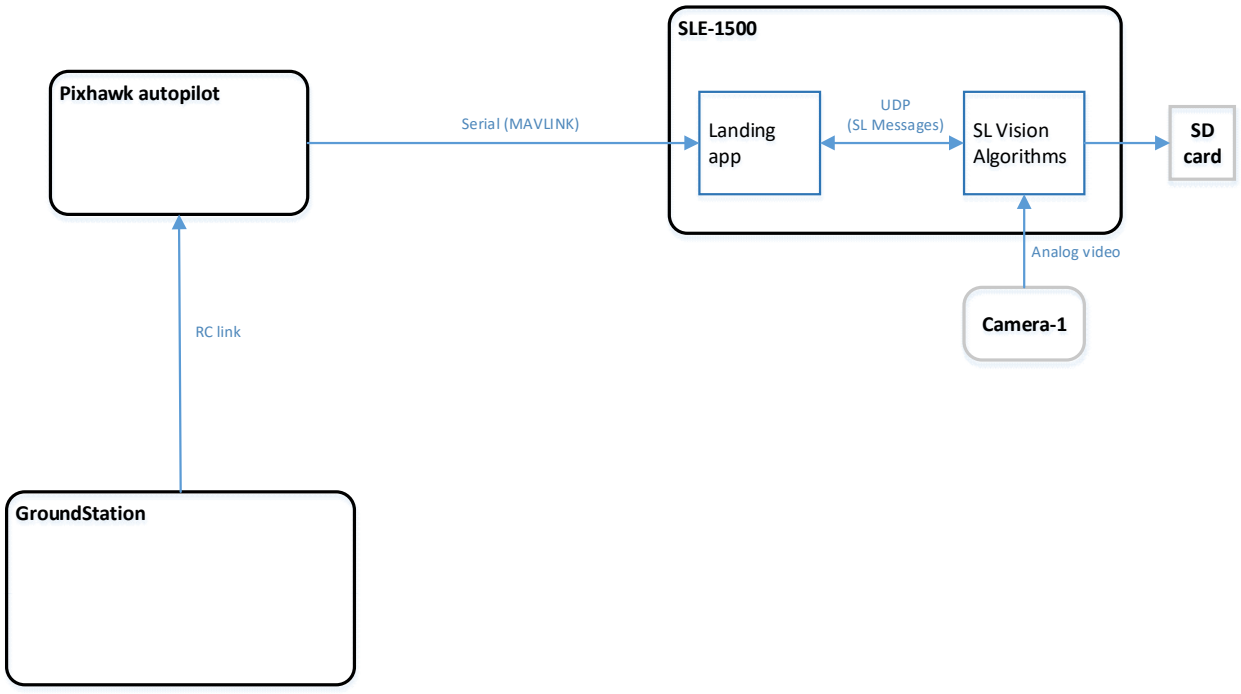

Figure 1. Landing Application Communications

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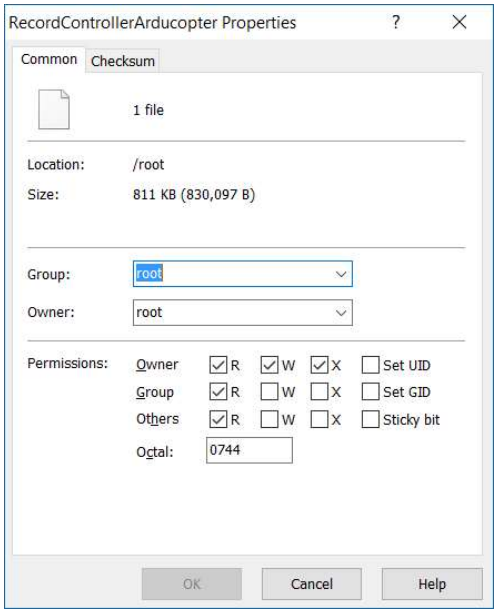
The landing application sends and receives data via the Mavlink protocol with the Pixhawk autopilot.

Installation Instructions

1. Download and install winscp (https://winscp.net/eng/download.php).
2. Power on the SLE-1500 and establish an ethernet connection between the SLA and a PC.
3. Open SLA PanelPlus and connect to the SLE-1500. Note the ip-address of the SLE.
4. Open WinSCP and configure a new connection:
    a. File protocol: SCP
    b. Host name: <ip-address from step 3>
    c. Port number: 22
    d. User name: root
    e. Password: root
5. Copy the file “SLALandingAppAPMCopter” from the host PC to the SLE (drag and drop file into WinSCP window).
6. Right-click the file “SLALandingAppAPMCopter” in WinSCP and select “Properties”.
7. Under “Permissions”, check the “X” next to “Owner”
    a. 

8. In WinSCP, navigate to </root/etc/rc.d/
9. Edit the file “rc.local” to start the record controller app at startup as shown:

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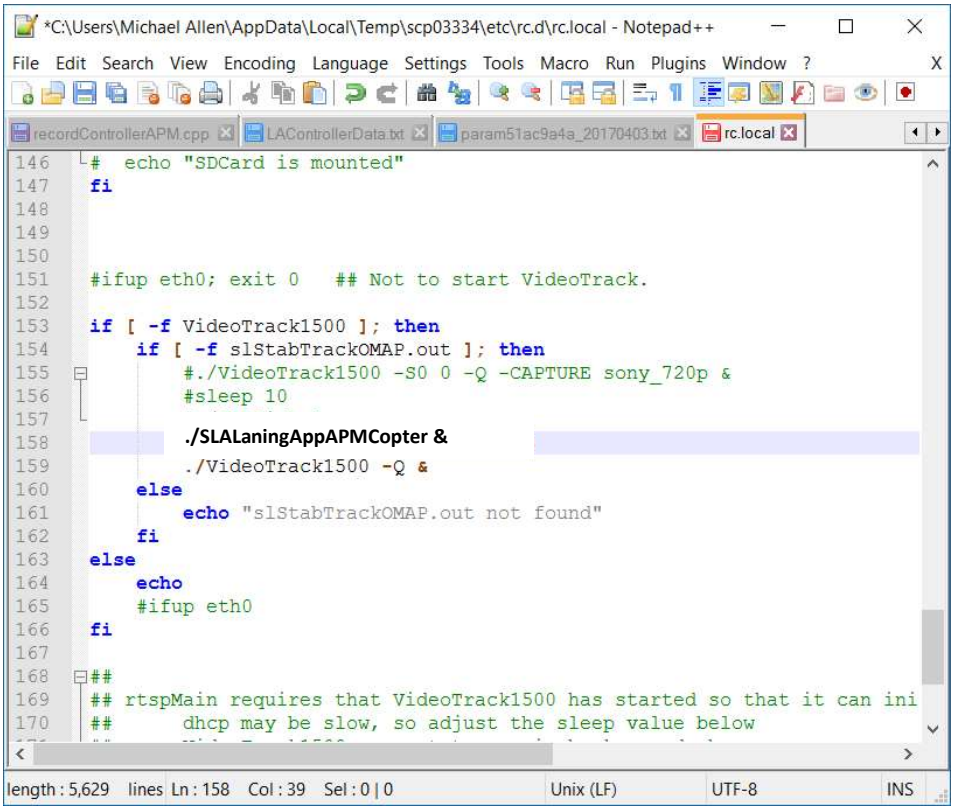
a.



10. Save and close rc.local.
11. Close WinSCP.
12. In SLAPanelPlus, open the “Comms” tab.
13. Configure serial port 0 as shown:

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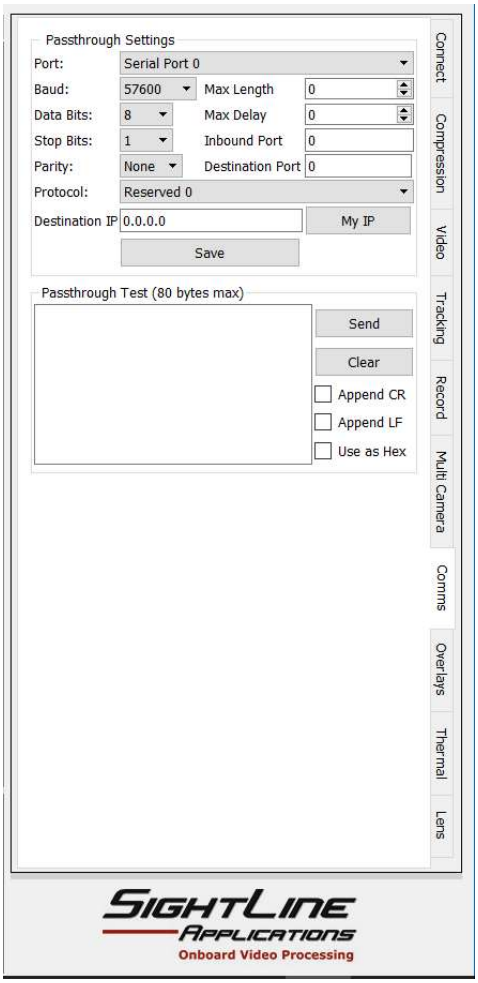
a. 

14. Click “Save”
15. Power on Pixhawk and establish a connection with Mission Planner
16. Select “Config/Tuning” and “Full Parameter Tree”
17. Set the serial port that is connected to the SLE to output Mavlink protocol at 57600 baud. For example, if Telem-2 is connected to the SLE then set SERIAL2_BAUD to “57” and SERIAL2_PROTOCOL to “1”.
18. Set FLTMODE3 to “4” for guided mode.

Test

1. Power on the SLE and Pixhawk
2. Open “rc.local” and comment out the line that runs the LandingApp
3. Open Putty or similar program that allows an SSH connection (a linux machine works as well).
4. In Putty, set the connection type: SSH, IP address: <SLA IP address>, and connect.
5. In Putty, enter: “./SLALandingApp_APMCopter”
6. The application should run and indicate a connection with the autopilot and the SLA.