ZENIT-AUSTRALIA GROUND INFRASTRUCTURE LSMS

The following Figure 1 presents a general structure of the LSMS.

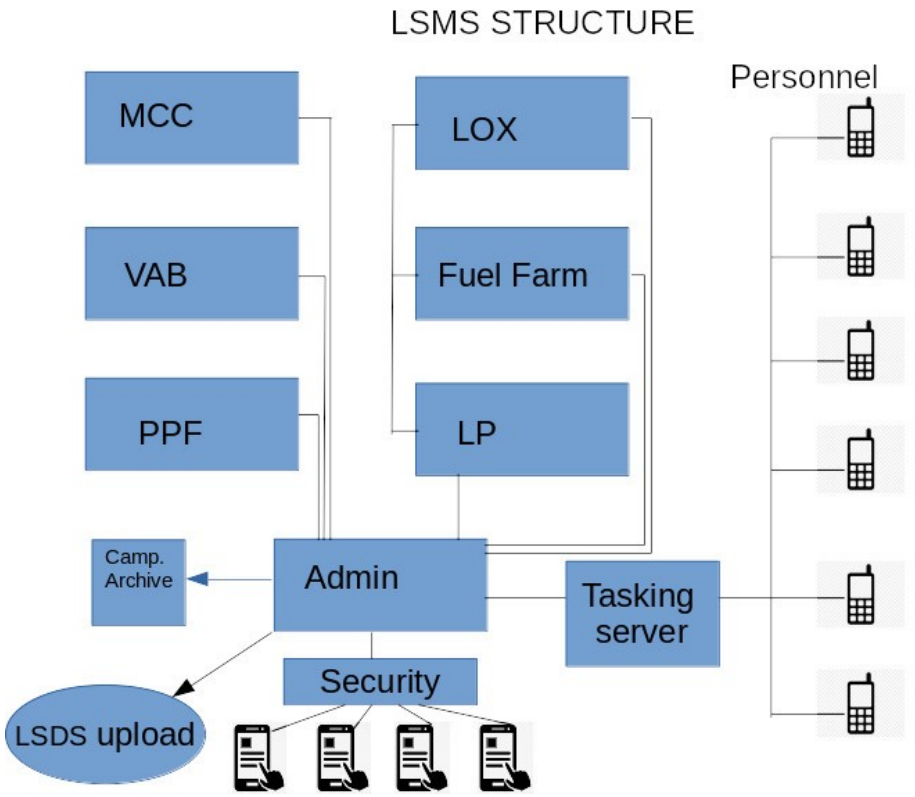

Figure 1. LSMS structure.

At this figure:

- MCC is the Mission Control Center;
- LOX is the Liqid Oxygen Plant;
- VAB is the Vehicle Assembly Building;
- PPF is the Payload Preparation Facility
- LP is the Launch Pad.

Each server runs a separate M2C application that exports the system state parameters. The application supports control of all available resources and LAN connections for all components of the system (control workstation, operator workstations, data storage and printer-scanner, sensors in the LS buildings, support equipment, handheld devices). It pushes scheduled tasks to handheld devices of LS personnel, pulls reports from LS personnel devices, and presents the system operator with a colour-coded GUI that reflects the current conditions of all system components superimposed on the facility floor plan (see next figure). LSMS supports up to 10 000 data points, with an update rate of once per minute and video feeds from CCTV cameras available on demand.

Alpha-testing of the system for the Spaceport included two buildings (Payload

Preparation Facility and Vehicle Assembly Building) with several monitored objects each. The system was tested using a calibrated data stream produced by generators of random numbers. Alpha-testing of the system was completed on August 18, 2023. The following figure 2 provides a screenshot of the operator's workplace for the ground floor of the Payload Preparation Facility.

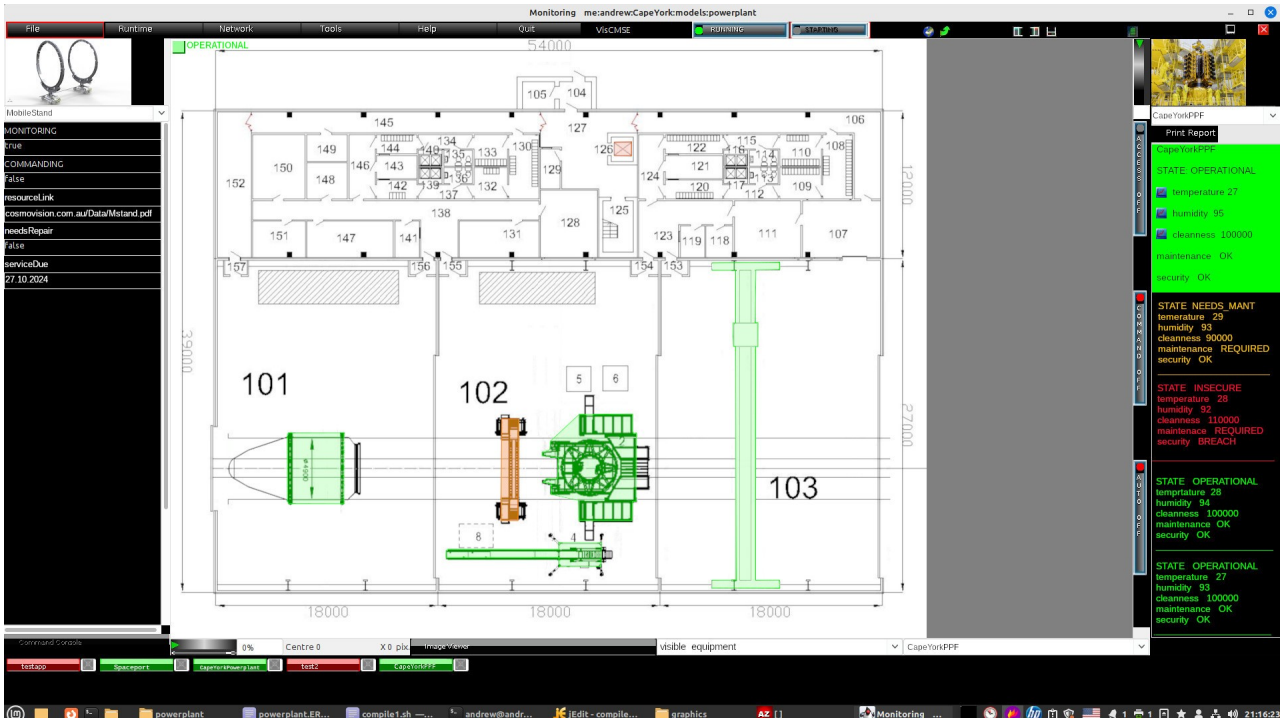

Figure 2 Screenshot of the monitoring system for Payload Preparation Facility (ground level). The monitored system includes a crane, elevator, payload assembly stationary stand, and three pieces of support equipment. In the figure above, one mobile stand and the elevator need repair and thus have different colour coding.