# Control Layer

## General

The Control layer is the virtual hub for all the other layers. It receives and process data from the Sensor and Camera layer according to the user profiles and store and distribute them accordingly.

The control layer also includes a GUI subsystem to allow user to access cameras, sensors, alerts and log information locally on the central computer.

Furthermore, the Control layer also ensures that any remote communication must be done in a secure fashion.

Need a picture here, Brian my hero? ☺

Figure - Control Layer

## Subsystems

### Logic

#### General

The Logic is a subsystem within the Control layer and is responsible processing sensors and camera inputs data. After all the input data is received, the Logic subsystem will prioritize and distribute them to the log and communication subsystem. How the input data is prioritize and distributed is depend on the user configuration.

#### Assumptions

The Camera and Sensor layer must be working normally.

#### Responsibilities

The Logic subsystem is responsible for retrieving images or videos and camera position from the Camera layer. The Logic subsystem will also responsible for retrieving sensor data from the Sensor layer. All input data will be processed and distributed to the Log and Communication System.

#### Subsystem Public Interfaces

N/A

#### Inputs

Camera data: The Logic subsystem pulls the camera data from the Camera layer. Camera data include images or video stream and camera orientation.

Sensor data: The Logic subsystem pulls the camera data from the Sensor layer. Sensor data indicate whether a sensor was tripped and a string for extra information such as a weigh sensor will also sending how much weight was detected.

Configuration data: The Logic subsystem pulls the configuration data from the Configuration subsystem. This for example tells the system which profile is currently active or whether a certain sensor should be ignored.

#### Outputs

Camera data: The Logic subsystem supplies processed camera data to the Log and Communication subsystem. Camera data include images or video stream and camera orientation.

Alert: The Logic subsystem supplies alert to the Log and Communication subsystem.

### Configuration Subsystem

#### General

The Configuration subsystem is responsible for storing and retrieving user profile information.

#### Assumptions

The central computer is power up and running.

#### Responsibilities

The Configuration subsystem is responsible for storing and retrieving user profile information.

#### Subsystem Inter-layer Interfaces

N/A

#### Subsystem Public Interfaces

N/A

#### Inputs

New or Updated Configuration data: The Configuration subsystem receives new or updated configuration data from the Communication subsystem.

#### Outputs

Configuration data: The Configuration subsystem supplies configuration data to the Logic, Log and Communication subsystem.

### Communication

#### General

The Communication subsystem receives and supplies data to the local GUI. It wills also supplies data to any remote subscriber.

Assumptions

N/A

#### Responsibilities

The Communication subsystem receives and supplies data to the local GUI. It wills also supplies data to any remote subscribers that are in the distribution list.

#### Subsystem Inter-layer Interfaces

N/A

#### Subsystem Public Interfaces

N/A

#### Inputs

Log data: The Communication subsystem receives log information from the Log subsystem.

Camera data: The Commutation subsystem receives camera information from the Log layer.

Alert: The Commutation subsystem receives alerts from the Log layer.

Configuration data: The Commutation subsystem receives Configuration information from the Configuration and GUI layer.

#### Output

Camera Control Commands: The Communication subsystem supplies command to the Camera layer to control the camera.

Log data: The Communication subsystem supplies log information to the local GUI and any remote subscriber.

Sensor data: The Communication subsystem supplies sensor information to the local GUI and any remote subscriber.

Camera data: The Communication subsystem supplies camera information to the local GUI and any remote subscriber.

Alert: The Communication subsystem supplies alert information to the local GUI and any remote subscriber.

### GUI

#### General

The GUI provides a way for the user to view the log, view or update configuration information, viewing camera feeds.

#### Assumptions

N/A

#### Responsibilities

The GUI provides a way for the user to view the log, view or update configuration information, viewing camera feeds.

#### Subsystem Inter-layer Interfaces

N/A

#### Subsystem Public Interfaces

N/A

#### Inputs

Configuration data: The GUI subsystem receives configuration data from the Communication subsystem.

Camera data: The GUI subsystem receives camera information from the Communication subsystem.

Alert: The GUI subsystem receives alert information from the Communication subsystem.

Log data: The GUI subsystem receives log information from the Communication subsystem.

#### Outputs

Information is displayed to the user via a text or graphical interface.

### Log

#### General

The Log subsystem store and retrieve log information.

#### Assumptions

N/A

#### Responsibilities

The Log subsystem store and retrieve log information. How the log is stored depend on the user configuration

#### Subsystem Inter-layer Interfaces

N/A

#### Subsystem Public Interfaces

N/A

#### Inputs

Camera data: The Log subsystem pulls the camera data from the Camera layer. Camera data include images or video stream and camera orientation.

Sensor data: The Log subsystem pulls the camera data from the Sensor layer. Sensor data indicate whether a sensor was tripped and a string for extra information such as a weigh sensor will also sending how much weight was detected.

Configuration data: The Log subsystem pulls the configuration data from the Configuration subsystem. This for example tells the system which profile is currently active or whether a certain sensor should be ignored.

#### Outputs

Log data: The Log supplies the log information to the Communication subsystem.