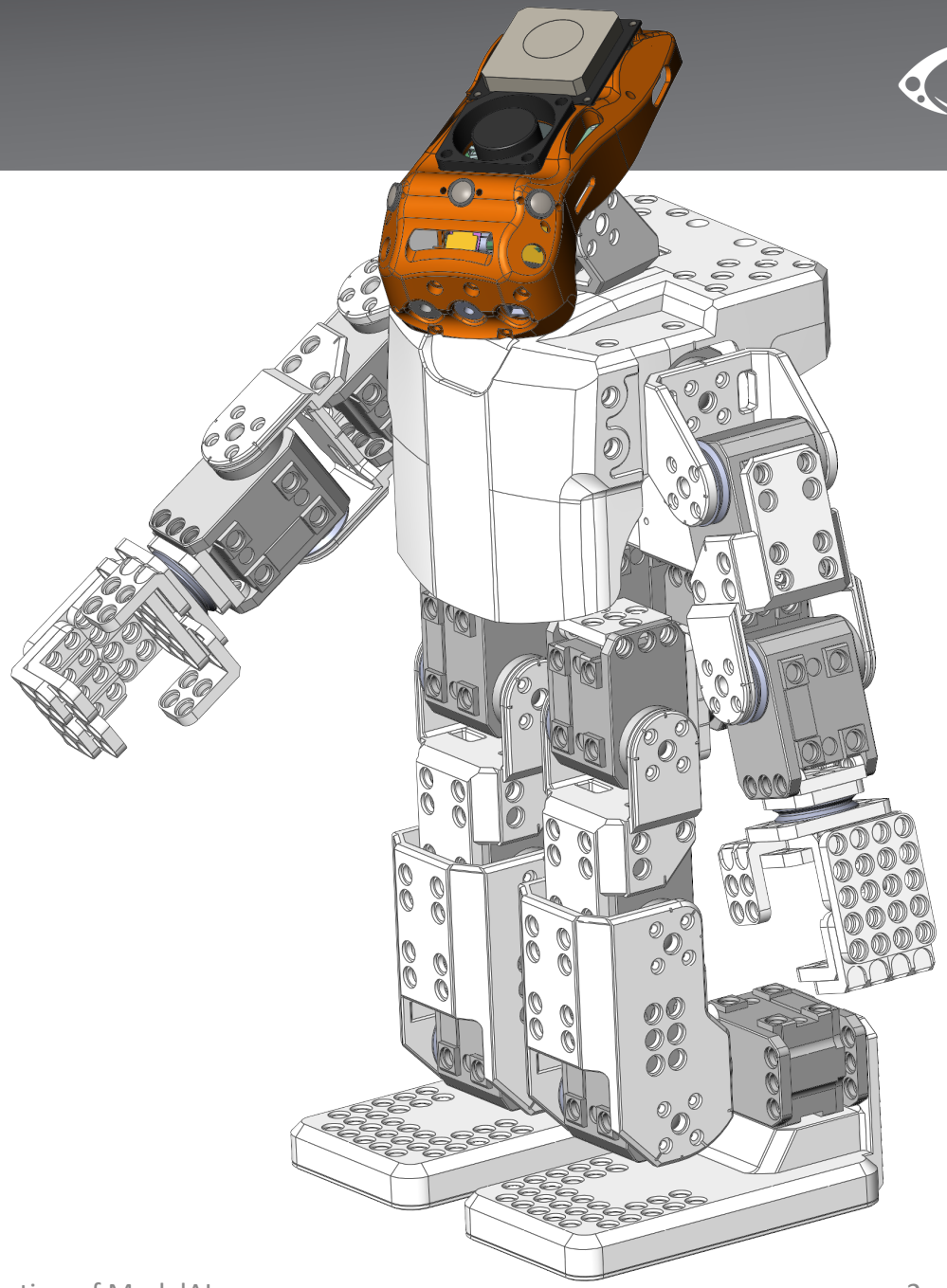

MODAL
ROBOTIC PERCEPTION
AI

About ModalAI

ModalAI, Inc. spun out of Qualcomm in June 2018. The team drove Qualcomm's drone R&D efforts (Snapdragon Flight, etc).

Accelerating safe autonomy with compact, light-weight, and powerful robot and drone perception and communication systems



ModalAI driving next generation UAS for the DOD

Defense Innovation Unit (DIU) selected ModalAI to design and build an advanced UAS Autopilot and Private, Handheld 4G Data link around its VOXL technology

R&D in San Diego

Field testing at MCAS Miramar AV Test Center

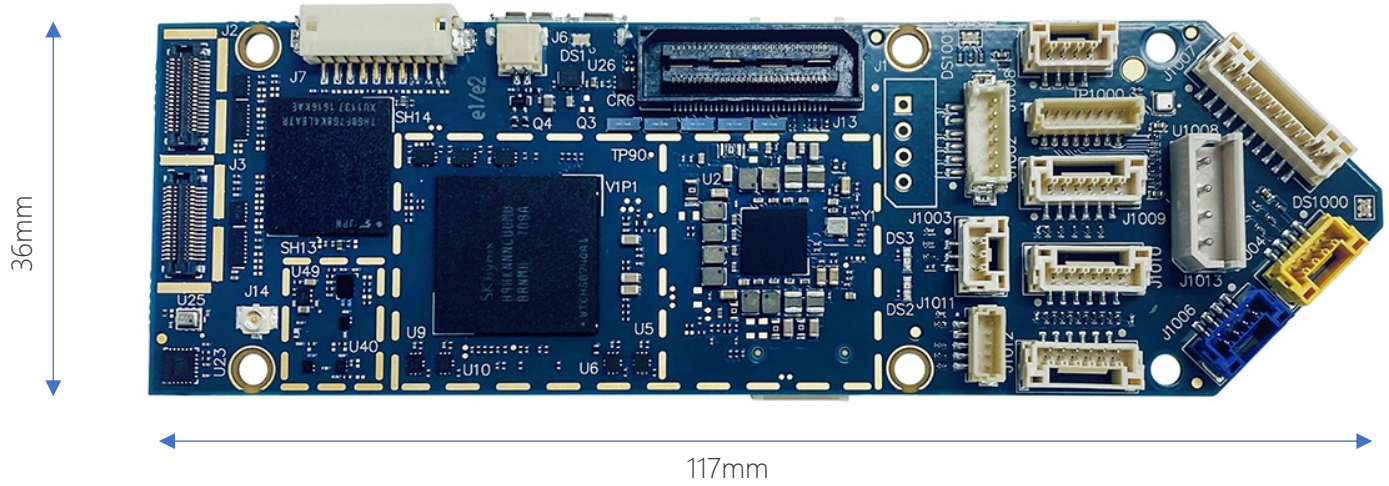
VOXL Flight Group 1 Advanced Autopilot

Perception and communications of Snapdragon 821, flexibility of Pixhawk (PX4)

Autonomous navigation with LTE, ROS, PX4/MAVLink 28g

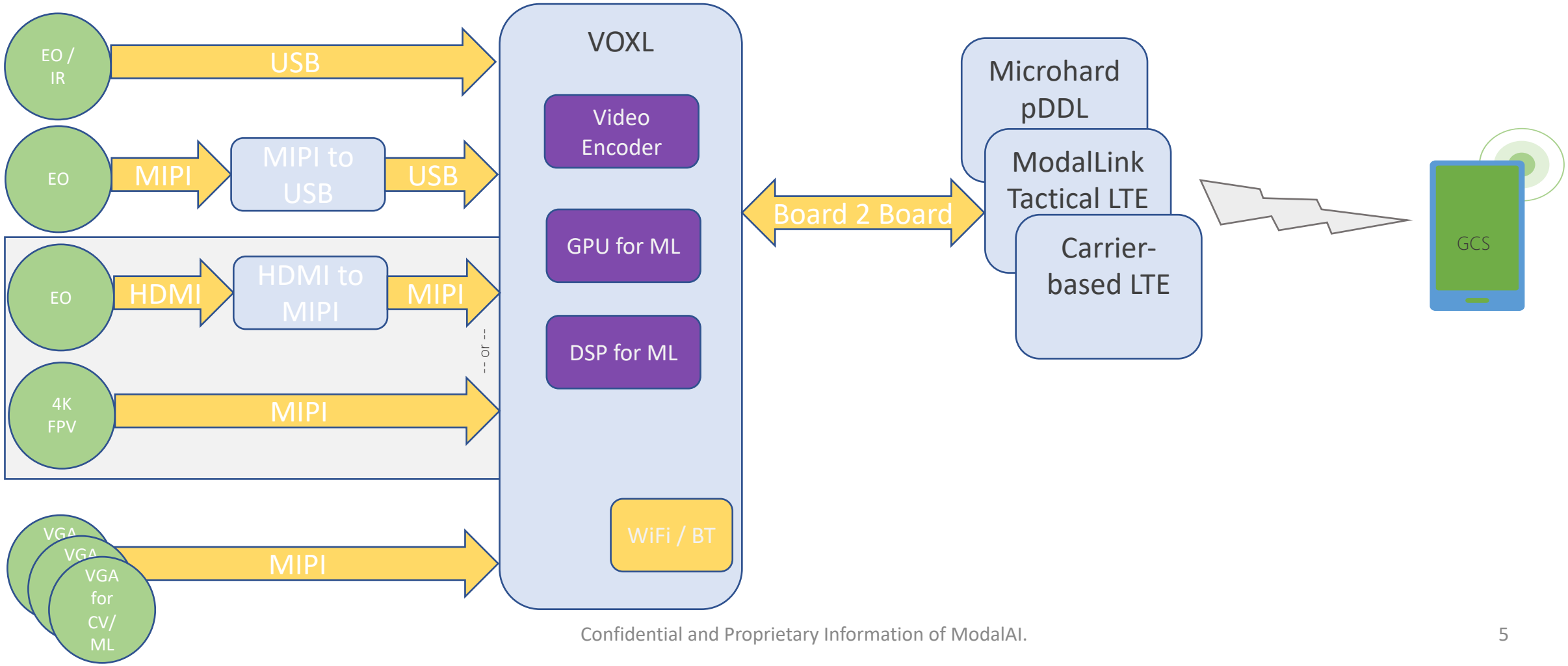
On-board Autonomous Decision Making in GPS-denied environments

Commercially launched October 2019 (www.modalai.com)

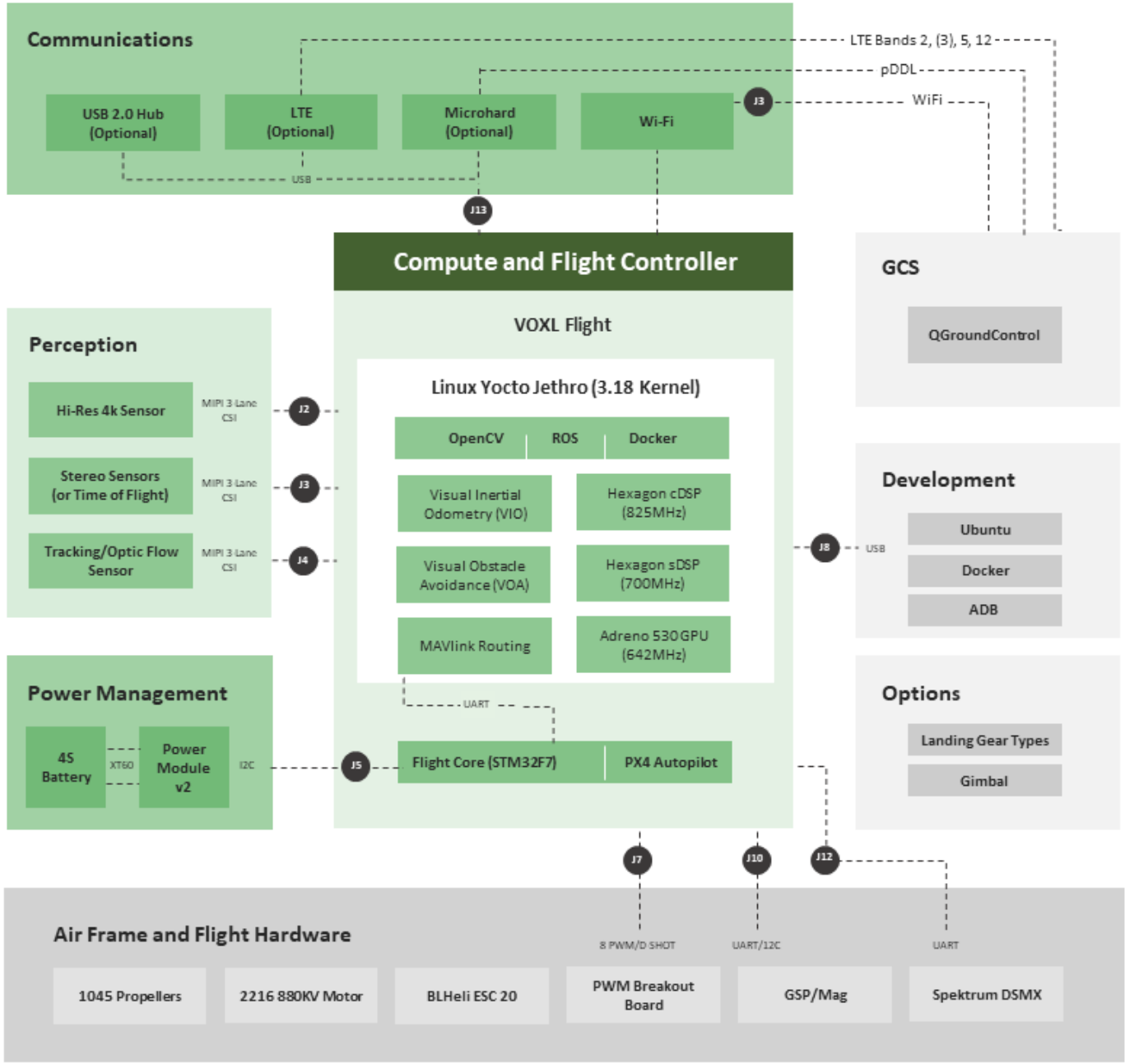


Payload and Communication Options

VOXL supports many payload configurations



VOXL m500 Reference Drone for the Group 1 sUAS Architecture



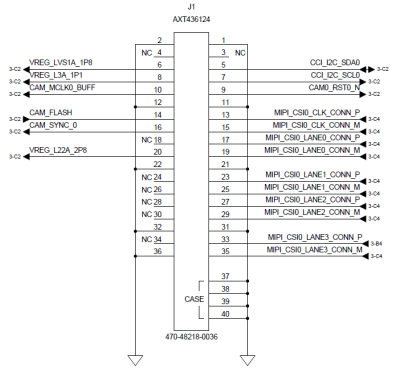
VOXL Obstacle Avoidance Sensor Payloads

Passive Stereo

Stereo Cameras: 3g

VIO Camera: 2g

MIPI-CSI2 Interface



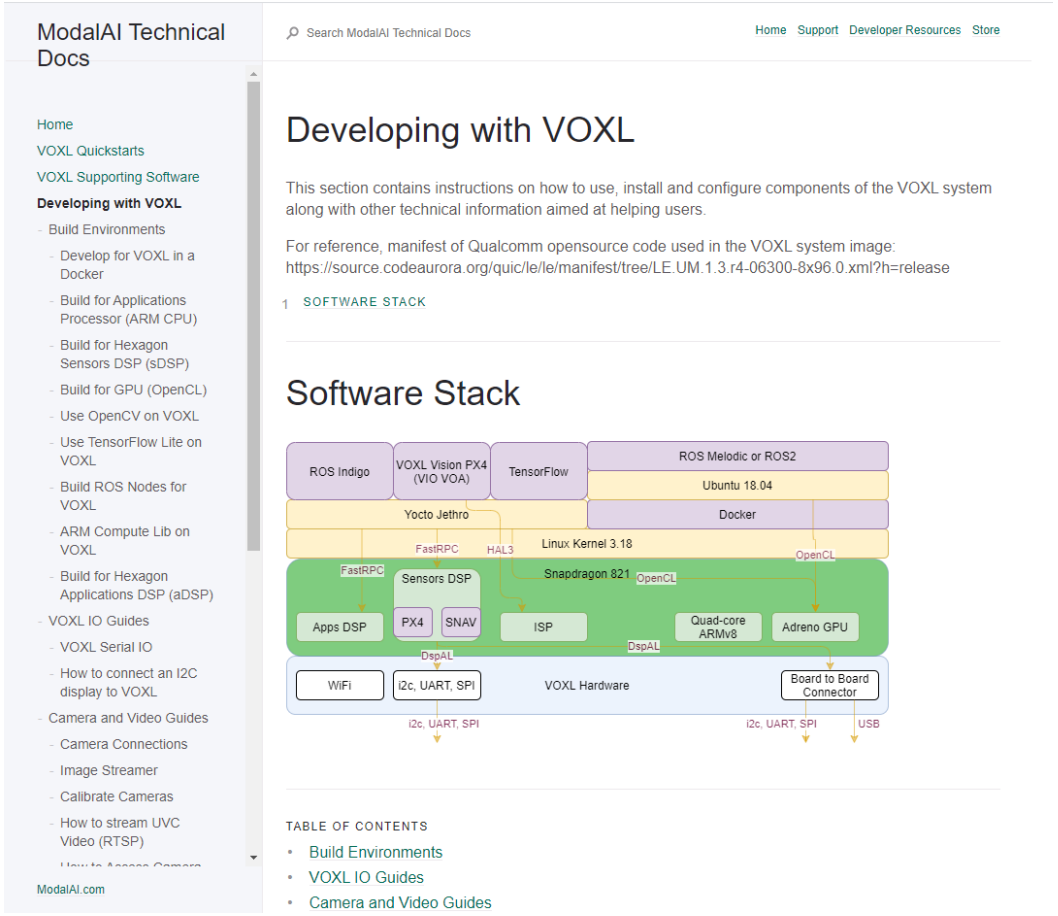
Active ToF (PMD)

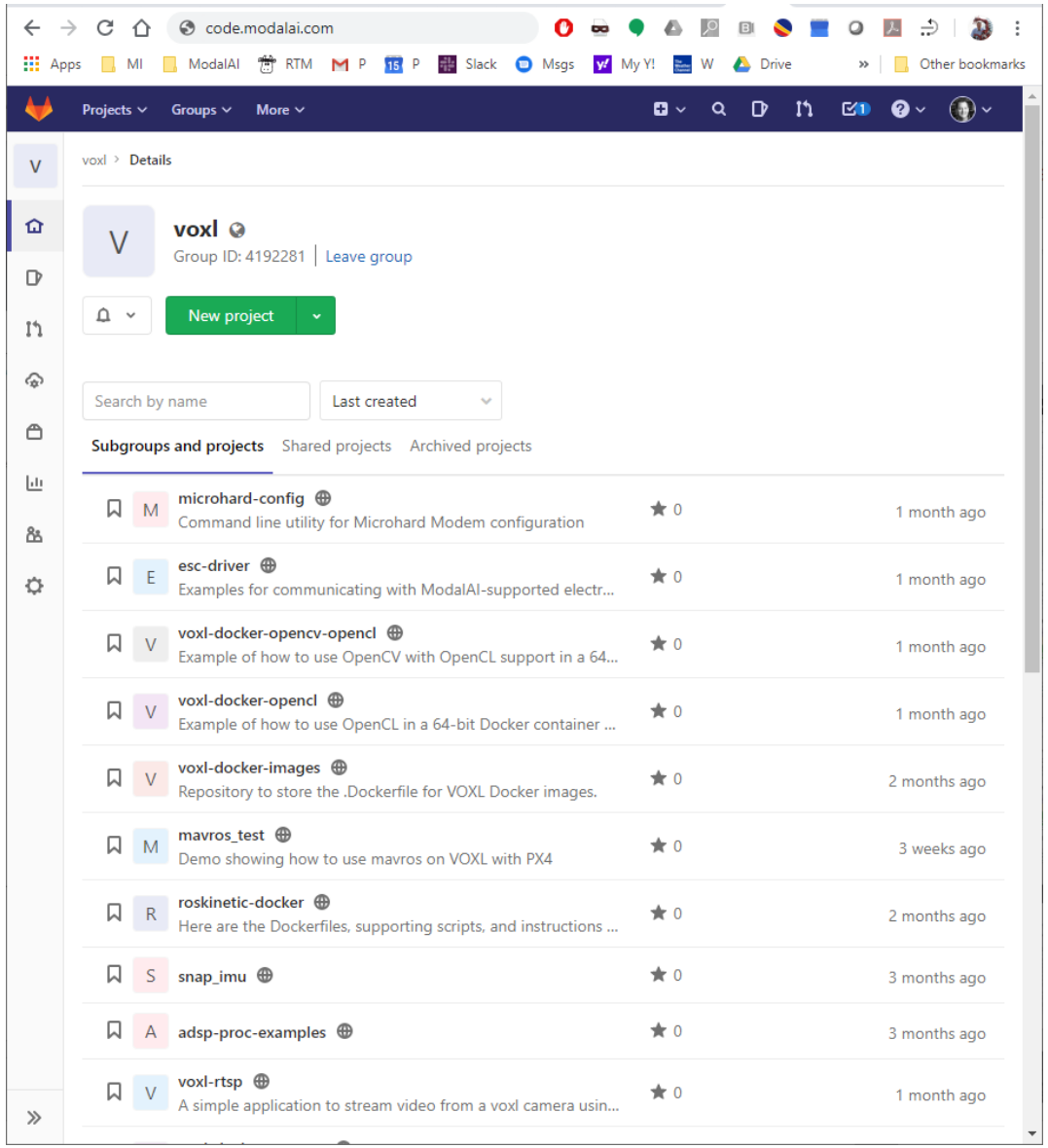
ToF Camera: 6g

VIO Camera: 2g

MIPI-CSI2 Interface

Documentation and Support





VOXL Roadmap

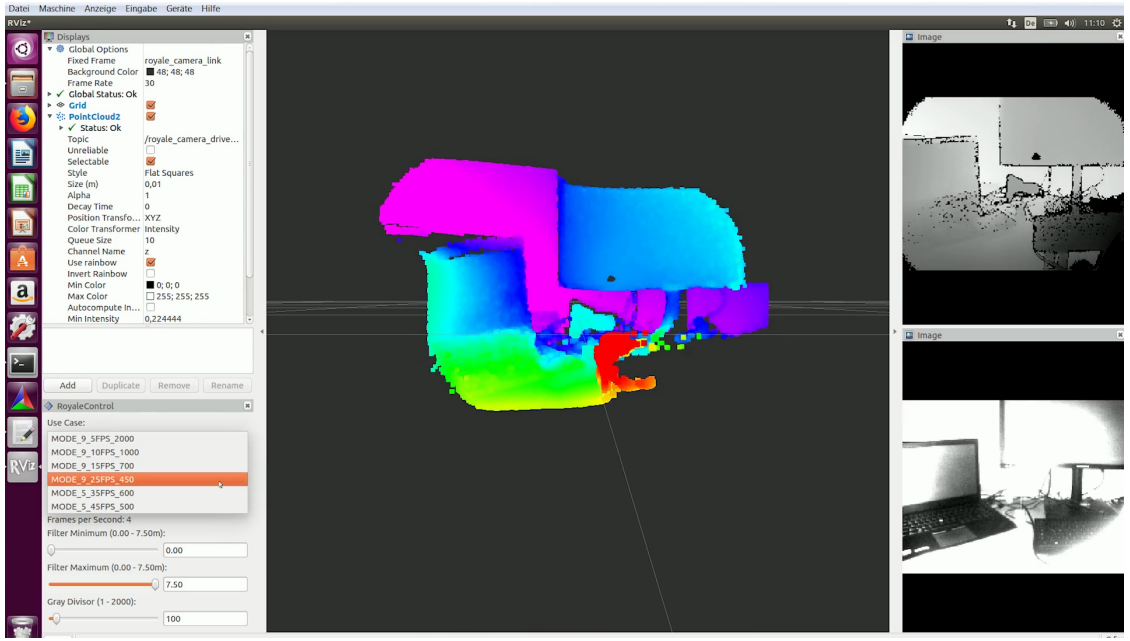
PMD Time of Flight available commercially
- 220x170 resolution, 6m indoor distance

US made multi-input, multi-I/O ESC that enables full electronics redundancy
- 2x UART bi-directional
- PWM input
- i2c optional

Socketed LTE module add-on board with stand-alone mode to enable multiple carriers and scenarios throughout the world

Flight Core w/ LTE

VOXL2 based on Snapdragon 865



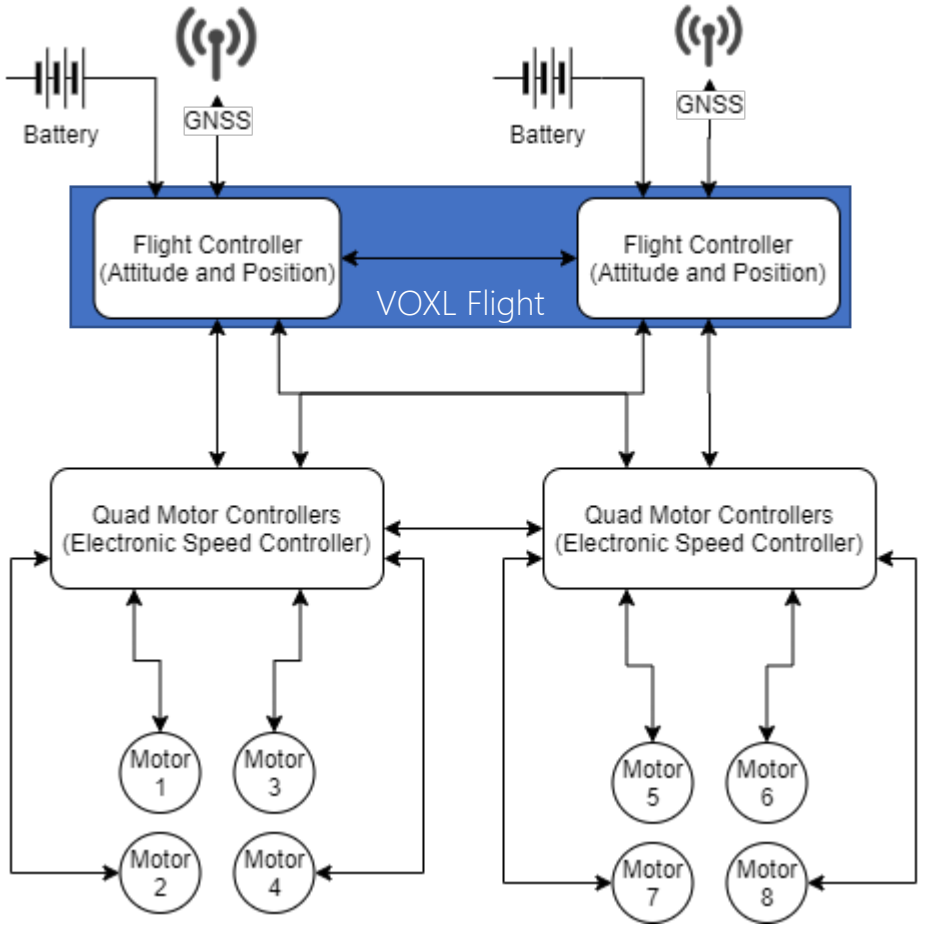
Fully Redundant Flight Control System

Each **Flight Controller** runs independently and monitors communication from GNSS and ESCs:

- If GNSS is lost, the GNSS from the other flight controller is used.
- If ESC is lost, flight controller transitions to using half of the motors. X8 to X4 for example.

Each **ESC** runs independently and monitors communication from each flight controller:

- If a flight controller is lost, the ESC notifies the other ESC.
- If a motor is lost, the ESC notifies the flight controller to transition to using half of the motors. X8 to X4 for example.

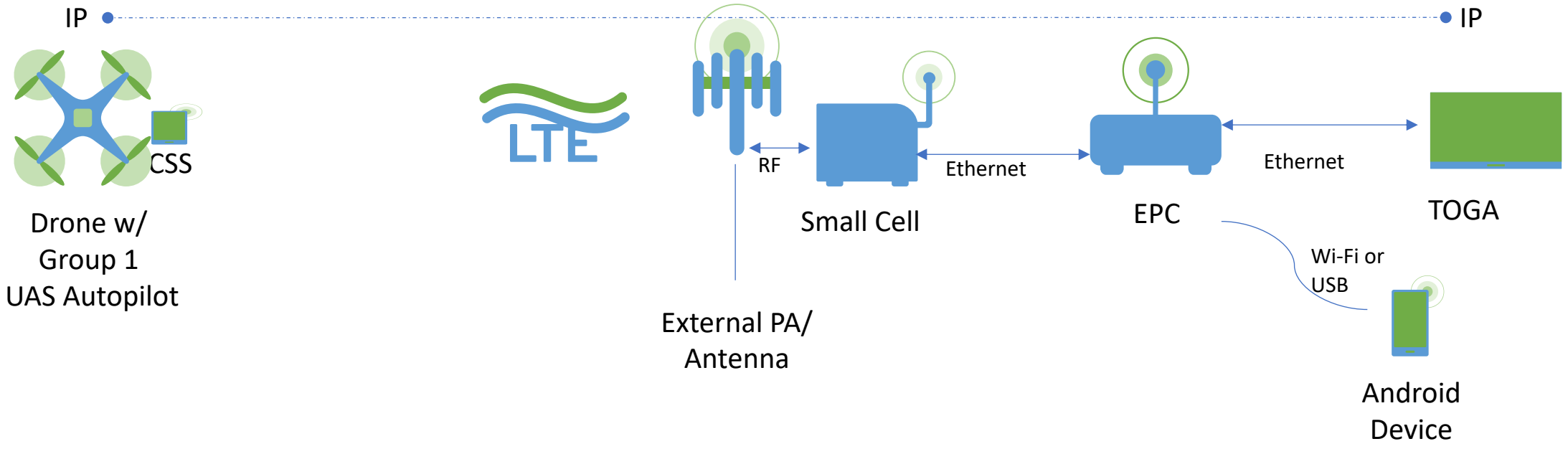


Group 1 Data Link

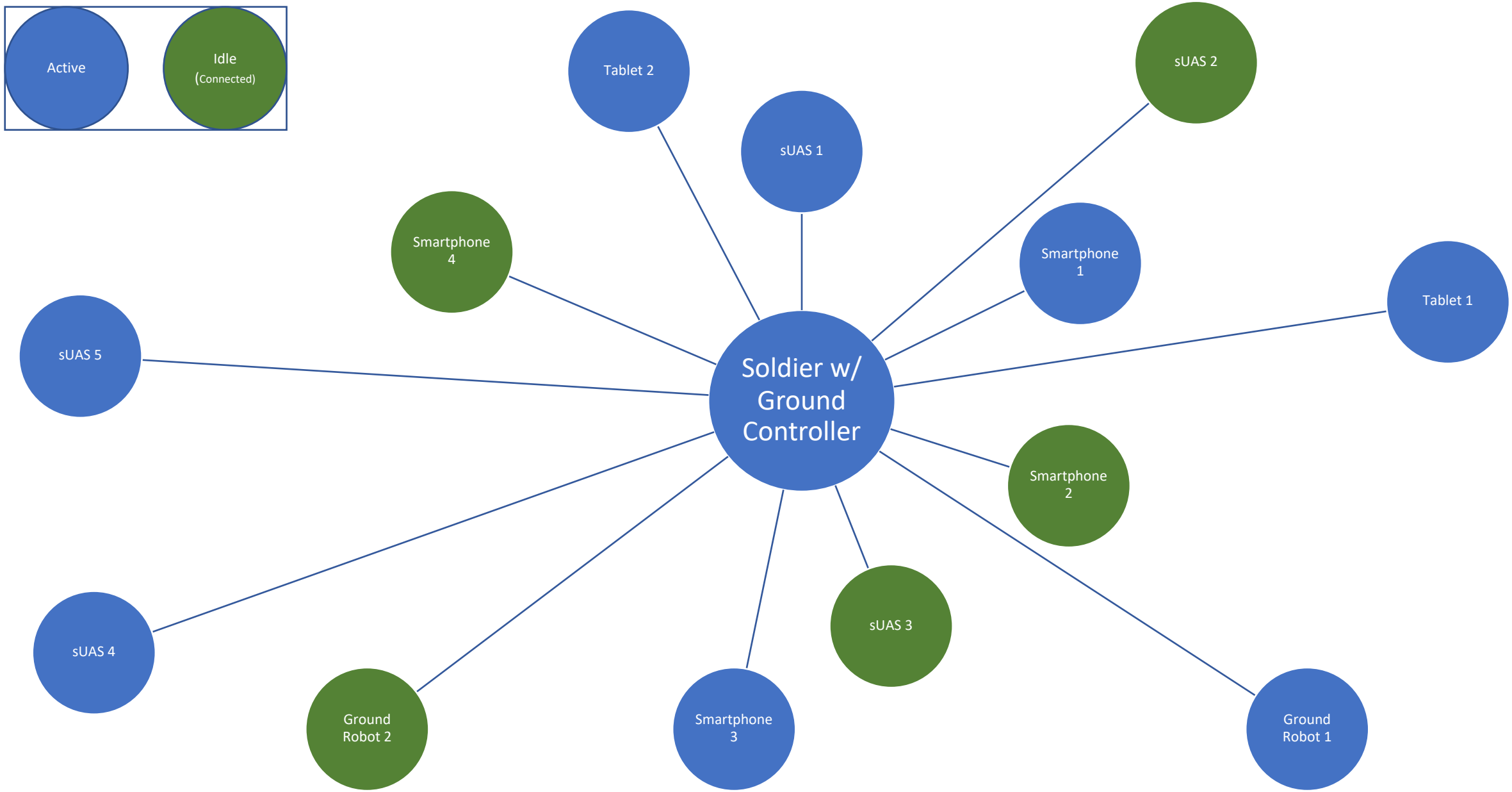
4G/LTE-based sUAS ground station, using a commercial femtocell, with an evolution to 5G

Multiple vehicle control, in same 5MHz FDD channel

Standards compliant, commercial components drives interoperability, which in turn reduces cost



Cellular Network in the Field



ModalAI DIU 4G/LTE Datalink

Robust communication using COTS equipment between:

- UAS
- Soldiers
- Sensors

Light enough to fly on a drone


MYDATA
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TEX

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