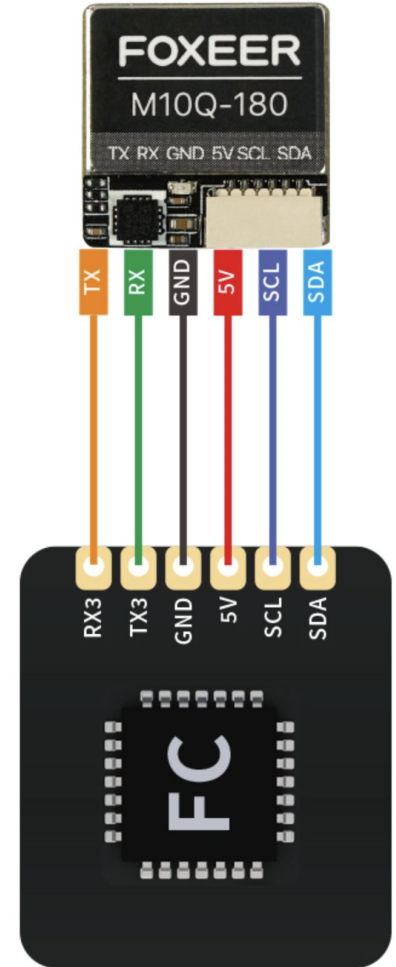


# Cube Orange

- did not go for the Cube Orange+, as the upgrades seemed minor
- three redundant IMUs
  - accelerometer + gyroscope
  - ICM 20649
- two barometers
  - MS5611
- magnetometer
- all sensors connected with SPI
- redundant power supply
- 14x PWM servo outputs, R/C input, 2 I2C ports, 1 SPI port (not recommended to use), 2 CAN, 3 analog inputs

# GPS Module

- supports I2C and serial
  - slow, but we only poll every ~0.5 seconds, so it doesn't matter
  - offers choices
    - would probably go with I2C and make a central bus
    - could switch to UART if cabling becomes too long
- ~1m spatial resolution
- might buy two for redundancy
  - lightweight and cheap, so not much of a sacrifice
  - can put them in separate areas



# Camera

- I didn't put that much thought into this one, because (from my experience, at least), the camera quality doesn't matter nearly as much as the quality of the algorithm
- I would simply find a cheap and lightweight USB webcam with decent resolution (1080p)
  - not going for 4k because of cost and bitrate issues
- the camera data would be sent to the Jetson Nano and the flight controller, although I am not sure what the flight controller would do with the data

# Jetson Nano

- I have heard good things about Orange Pi 5, but Jetson Nano has better GPU
- fairly light
- there is a dedicated camera port on the nano, but I would probably just use plain-old USB
- we will abuse the telemetry ports to send data between the jetson nano and the flight controller :D
  - this may be too slow, in which case we could switch to I2C or SPI
-

## FlySky Controller + Receiver

- fairly cheap controller, not too important of a choice (controller can always be swapped out later, any isn't this supposed to be the *unmanned* autonomous vehicles club?)
- should be compatible with R/C port on Cube Orange (universal format)

# Software

- probably px4, betapilot if scared for new members about learning curve
- ubuntu on jetson nano (or debian)