**Communications**:

To maintain a highly efficient embedded system capable of sending real-time pod state and sensor information, an appropriately powerful communications protocol was needed. The requirements were that the protocol be designed for low-latency, high-bandwidth applications, support the Ubuntu platform, and provide tools for logging. The Zero Communications and Marshalling (ZCM) protocol demonstrated all these qualities along with a transport-agnostic messaging system, which allowed for flexibility in pod design.

The drawback of using ZCM is that it does not support the Windows or OSX operating systems, which much of the development team requires for compatibility with their own personal laptops. To remove this dependency, both the ODROID and the pilot computer communicate using the Lightweight Communications and Marshalling (LCM) protocol, as it fulfills all requirements, supports Windows and OSX, and has a 95% API compatibility with ZCM. In order for the LCM and ZCM networks to communicate, a transfer program was written on their interface through a serial relay. With everything implemented, the pod was able to send control commands, sensor information, and state data rapidly with very little overhead.