



An extensible, low-cost drifter control unit

Andrea Giudici (1), Tomas Torsvik (2), and Tarmo Soomere (3)

(1) Institute of Cybernetics, Tallinn University of Technology (andrea@cens.ioc.ee), (2) Institute of Cybernetics, Tallinn University of Technology (tomas@cens.ioc.ee), (3) Institute of Cybernetics, Tallinn University of Technology (tarmo@ioc.ee)

We introduce an extensible, low-cost drifter control unit, which is developed for use with surface drifters that are deployed in inland water bodies or near-coast regions. The control unit is custom-built on top of a small footprint micro controller. It makes use of a GPS receiver for position tracking, a GSM radio for data transmission, and two sensor buses to handle analog and digital data measured by an array of external sensors. A cloud-based data collection platform receives and stores the data transmitted over GPRS from the drifter. The control unit was found to perform satisfactorily in operational testing, providing data at sub-Hz frequency for position and temperature during extended time. Test deployments revealed some issues related to power consumption spikes. Even though the unit is fully functional in the present form and shows, on average, low energy consumption, battery packs with relatively large maximum output power are required to ensure its operation within prolonged periods of time. We expect that a further development of the power supply unit together with a careful de-synchronization scheme of sensors' operation would smooth those peaks without any loss of the quality of recorded information.