

Case Study: Integration of YottaOcean's Drifting Buoys and Globalstar Satellite IoT Technology for Marine Research

1. Background

YottaOcean Inc. (South Korea) has over seven years of experience in manufacturing and selling drifting buoys by combining its proprietary development technology with Globalstar's satellite IoT modules. With more than 1000 units deployed to date, these drifting buoys are widely used for monitoring ocean currents and collecting environmental data, particularly in marine research and the fishing industry. Traditional methods of marine data collection had limitations in remote areas, making data collection insufficient, but YottaOcean has successfully addressed this challenge.

2. Challenges

Traditional methods of marine data collection faced restrictions in communication within remote or difficult-to-access marine areas. This made real-time data collection and rapid responses difficult, and high costs were a significant challenge.

3. Solution:

YottaOcean's Drifting Buoys Integrated with Globalstar Satellite IoT Technology

By integrating Globalstar's satellite IoT technology into its drifting buoys, YottaOcean has enabled data collection and real-time transmission anywhere in the world. The introduction of this technology has solved several challenges:

- **Wide Coverage:** By utilizing Globalstar's satellite communication network, data collection is possible even in remote areas, overcoming geographic constraints and ensuring reliable communication worldwide.
- **Cost-effectiveness and High Performance:** YottaOcean's drifting buoys are competitively priced and provide an affordable solution for continuous data collection and long-term marine monitoring.
- **Real-time Data Transmission:** The drifting buoys transmit real-time data, such as ocean current speed, via satellite, providing timely information to research institutions and fishermen.
- **Easy Deployment:** Compact, rugged, and lightweight, the buoys can be easily deployed from helicopters, enabling quick deployment into marine areas. This has resulted in reduced operational costs and improved deployment efficiency.
- **Environmental Considerations:** YottaOcean's drifting buoys are made of biodegradable materials, minimizing their environmental impact after use.

Additionally, the buoys transmit data every 10 minutes and can operate for up to three months.

4. **Applications**

YottaOcean's drifting buoys, integrated with Globalstar's satellite IoT technology, are utilized in various fields as follows:

- **Support for Marine Research:** By collecting ocean current and environmental data, climate change and marine ecosystem research have advanced, providing scientists with new insights.
- **Optimization of Fisheries:** Fisheries cooperatives use ocean current data to predict fishing grounds and optimize harvesting strategies, improving resource management.
- **Environmental Monitoring:** The drifting buoys are also being explored for monitoring ocean pollution, with plans to detect environmental changes early through satellite communication and respond rapidly.

5. **Results and Achievements**

YottaOcean's drifting buoys, by leveraging Globalstar's satellite IoT technology, have achieved significant success. Key outcomes include:

- **Data Accuracy and Real-time Communication:** Research institutions and fishermen can now access high-accuracy data in real-time, deepening their understanding of marine environments.
- **Cost Reduction and Operational Efficiency:** With Globalstar's satellite IoT technology, communication costs have been reduced, and operational efficiency has improved, enhancing the sustainability of marine monitoring.
- **Widespread Deployment:** More than 1,000 drifting buoys are already in use globally, with deployments in South Korea as well as in other countries by research institutions and companies.

6. **Future Outlook**

YottaOcean plans to expand the deployment of drifting buoys integrated with Globalstar's satellite IoT technology, continuing to support marine research and fisheries monitoring. Future models will also allow for the collection of additional environmental data, such as sea temperature, air temperature, air pressure and surface wave and salinity. This will enable more comprehensive marine monitoring, accelerating sustainable ocean management.



