

# Constant Temperature Drone Payload

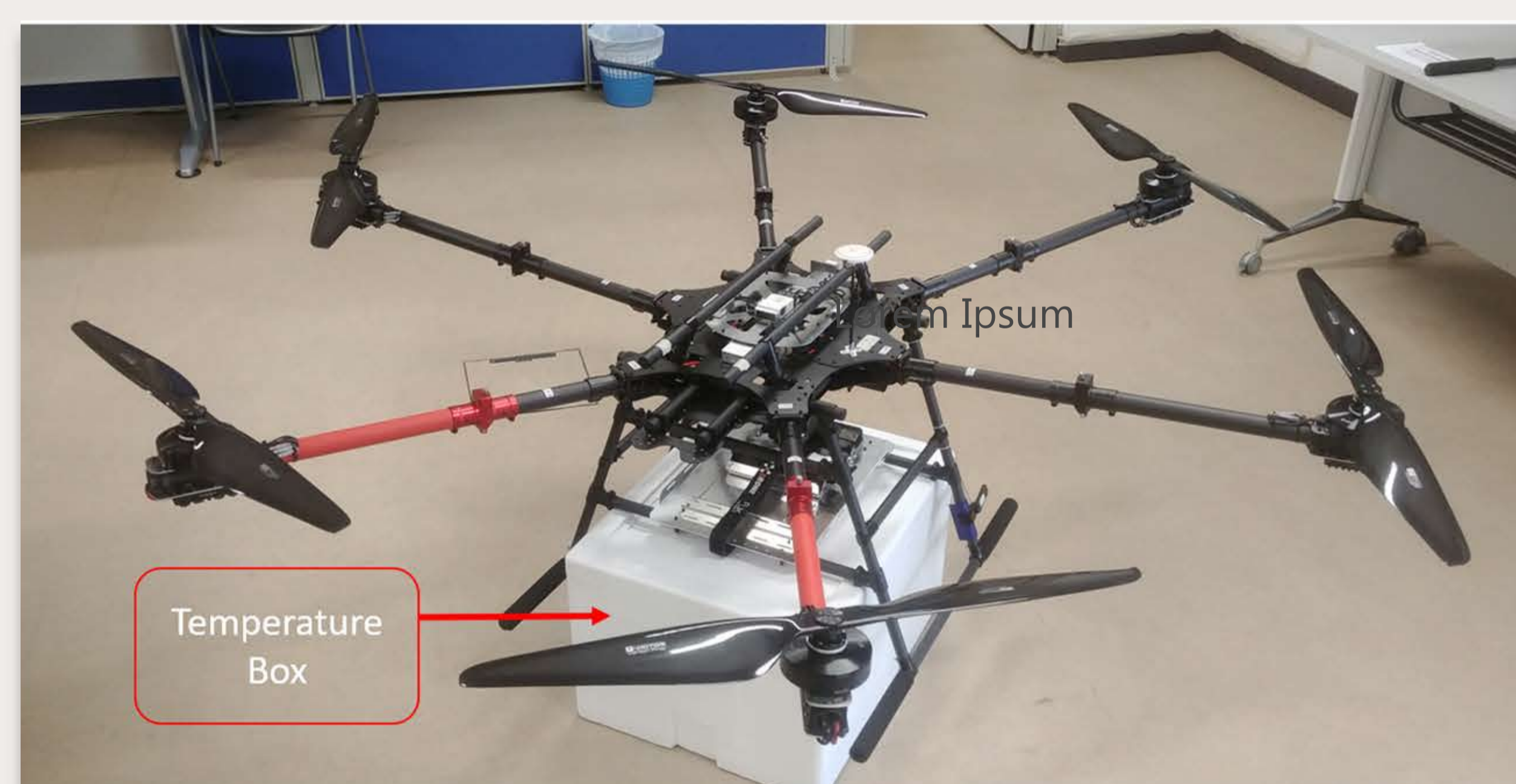
## Technology Overview

Constant temperature drone payload technology is designed to maintain a stable temperature environment within the payload compartment of a drone regardless of external conditions. This technology is particularly useful for transporting temperature-sensitive items such as medical supplies, food, biological samples, or electronics. To achieve this, a temperature control module is used to regulate the internal temperature of a transport container that operates below ambient temperature using dry ice as cooling medium. In addition, a temperature control module provides heating system to raise the temperature above ambient temperature inside the transport container.



## Features & Specifications

Cooling and heating modules are incorporated with a microcontroller coupled with temperature sensors feedback to regulate the temperature within the transport container. In this way, the transport container allows hot swapping of one module to another, in a seamless manner. The system can be regulated and maintained at any temperature between  $-20^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$  so that the contents can be transported over long distances. In addition, an IoT system was developed to remotely monitor the temperature of the contents.



## Customer Benefits

Provide a temperature-controlled box for transportation and storage of temperature-sensitive products. It can lead to better product integrity, extended shelf life and enhanced efficiency as compared to other methods and solutions.

## Potential Applications

This technology can be applied in:

- Pharmaceutical industry: transport temperature-sensitive medications, vaccines, and biologics;
- Food and beverage industry: transport perishable goods, such as fresh produce, dairy products, seafood, and frozen foods; and
- Biotechnology and life sciences: often deals with delicate and temperature-sensitive materials, including biological samples, diagnostic kits, reagents, and enzymes.