Based on ARM Mbed:
• Modern C++, highly modular design
• Free, open-source RTOS
• Supports many targets, easy to port
• Community support

Modular and portable software design:
• Easy to test, maintain, and extend
• Easy to adopt to new hardware, resilient to supply chain disruptions

Task based architecture
• Producer/consumer model
• Separation of concerns, highly modular
• Deterministic timing with Mbed RTOS

Remote ID Encoding and Decoding
• The Remote ID messages have a standardized format they fit into
  • Location, identification, etc are encoded into the Open Drone ID format messages
  • The encoded messages will be sent over Bluetooth or WiFi
• We used opendroneid-core-c standardized library for encoding

Hardware Design
• We design a printed circuit board to connect our Bluetooth and GPS modules to the board for the STM32 development board
• The shield design was chosen to minimize design and fabrication times and to reduce the impact of semiconductor shortages

Android Application
• We use example Open Drone ID Android receiver app to test our implementation
  • Detects and receives Remote ID messages produced by nearby devices through Bluetooth
  • Decodes the received message and displays the location of nearby Remote ID-enabled drones on the map
• We use this app to test compliance with the standard like format, interval, and range.

Future Work, References, and Acknowledgements