We used PingStation, an ADS-B receiver from uAvionix. This receiver is a dual band networkable receiver with Power over Ethernet (POE). The PingStation detects ADS-B equipped aircraft within a 240 km (150-mile) radius. The PingStation is robust enough to be used in harsh environmental conditions and small enough to be used as a mobile asset for roaming operations. ADS-B out (ADSB transmission) contain other parameters from the aircraft like altitude, heading, speed and flight number. This information is broadcasted to ADS-B equipped ground stations.

|  |  |
| --- | --- |
| Specification | Value |
| Input Voltage /  Power | 44-57V / 500mW  Power over Ethernet |
| Size | 4.75”X2.0”X3.25” (box)  9.5” (antenna) |
| Weight | 340 grams |
| Receive | |
| MTL 1090MHz  Dynamic Range | -88dBm  -79 to 0dBm |
| MTL 978MHz  Dynamic Range | -93dBm  -90 to -3dBm |
| Interfaces | |
| Ethernet (JSON UDP) | |

Technical specifications of PingStation

So, data from aircraft were obtained using an ADS-B receiver. This data was then sent to a processing computer by configuring Dynamic Host Configuration Protocol (DHCP) connection between receiver and processing computer. Mapbox is a large provider of custom online maps for websites and applications, it allows developers to build applications that are flexible for visualizing geospatial data.  In our application we used Mapbox to visualize aircraft trajectories on map. Data received by processing computer is used by Mapbox. A local host connection is used to view aircraft traffic in the browser. Mapbox together with HTML (Hypertext Markup Language) enable visualization of air traffic on the map. Air traffic on the map gets updated for every two seconds. This application was implemented in Python v3.6.