

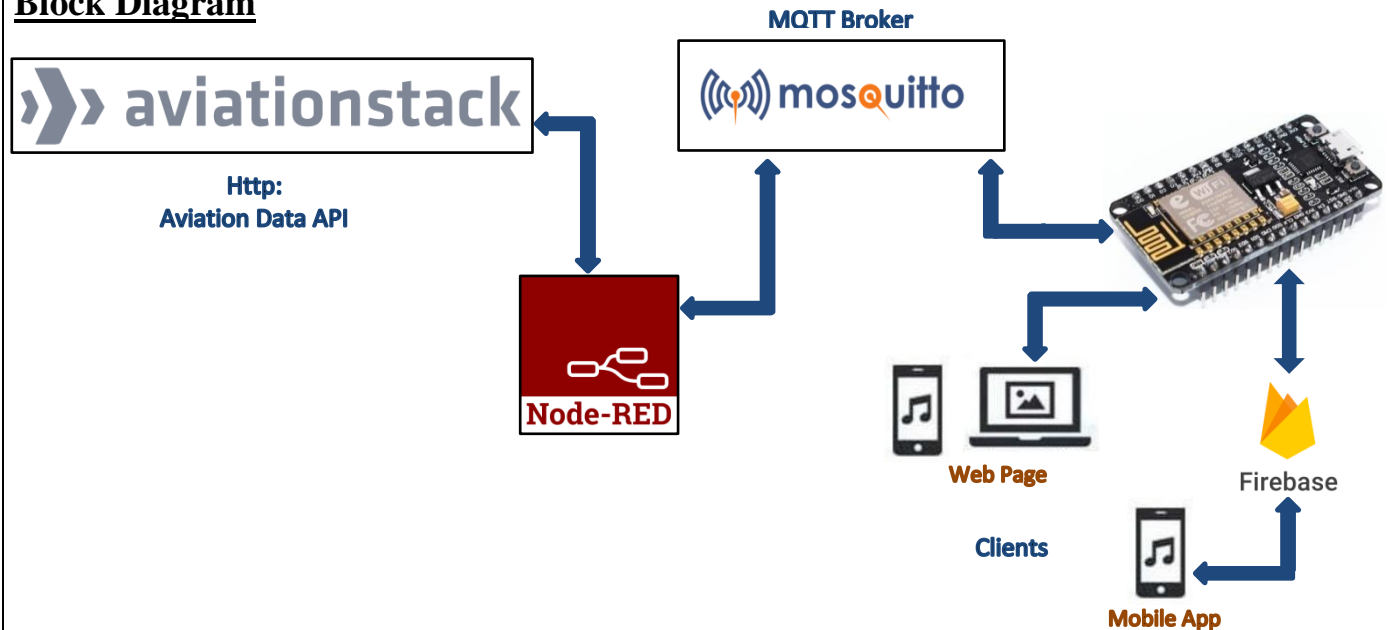
Problem

It is important for travelers, busy people as well as people who have missed their flight to be aware of scheduled flights, changes in flight arrival/departure times, and other important details that can impact their travel plans. Therefore, they can plan their daily lives accordingly.

System Overview and Operations

As a solution to the above problem, we proposed to create a web interface and mobile application that can provide the person with departure date and time, arrival date and time, airline name and many more information about scheduled flights.

Block Diagram



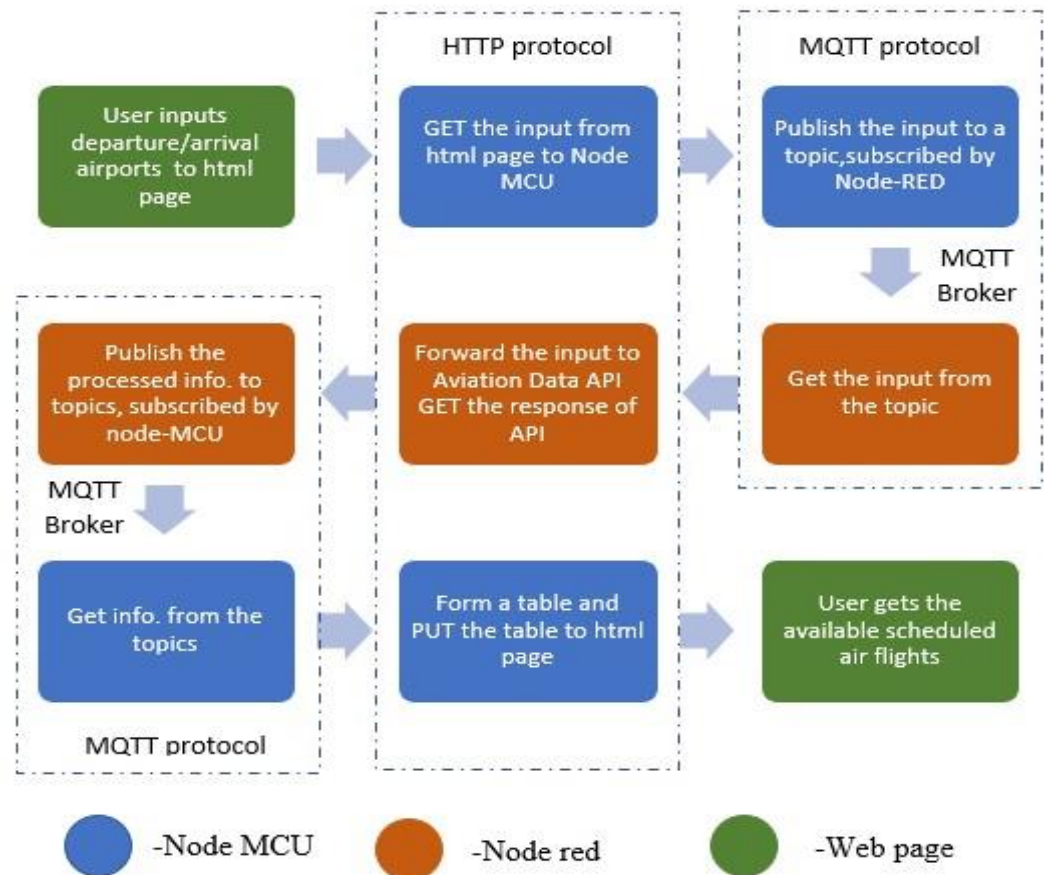
- Data source is a free open-source global aviation data API named as “Aviationstack” which provides an extensive of aviation data, including real-time flight status, historical flights, schedules, airline routes, airports, aircrafts, and more.
- Node MCU publishes client requests through MQTT protocol and subscribes to topics published by node-red using publish-subscribe architecture. Here Node MCU acts as a server and displays the data related to the subscribed topics to the web page and the mobile app using http protocols. (Client server architecture)

Online resources

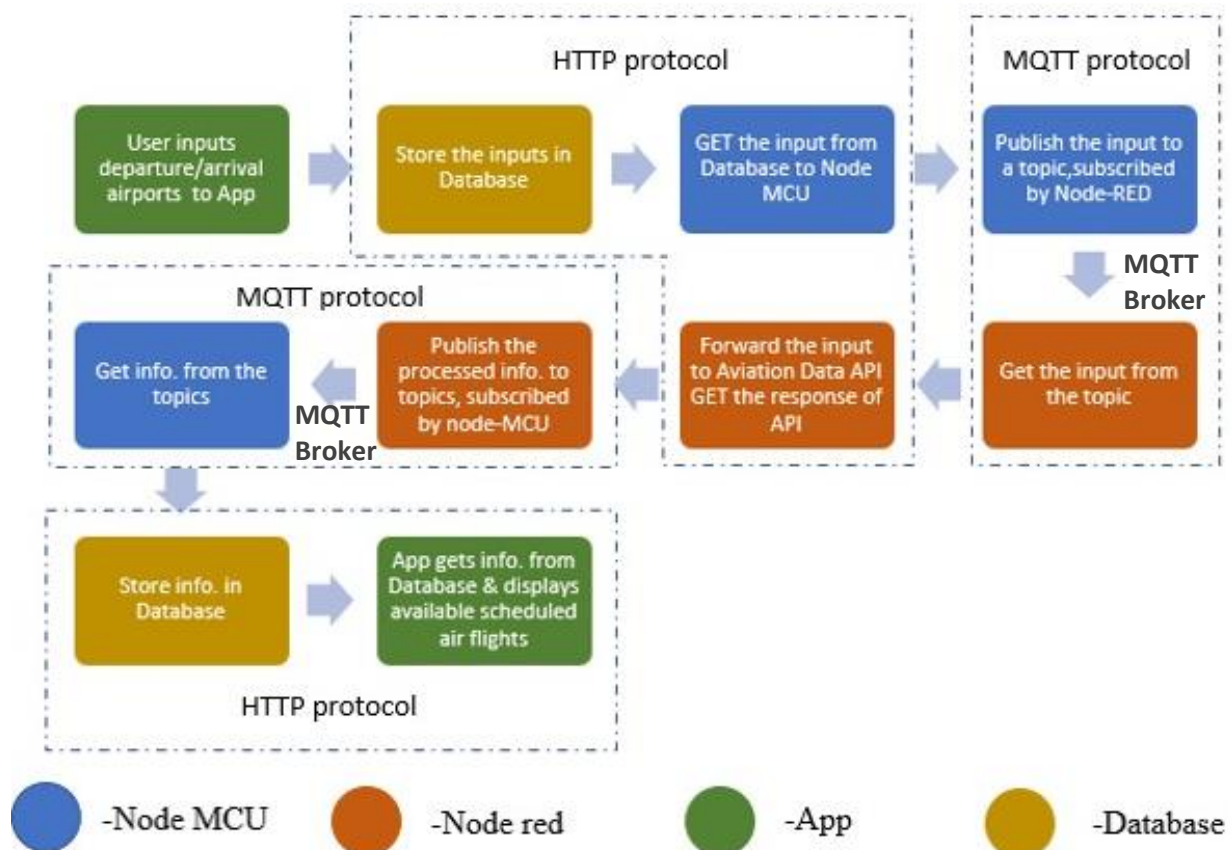
1. Aviationstack- free, Real-time Flight Status and Global Aviation Data API
 - <https://aviationstack.com>
2. Firebase Realtime Database- cloud-hosted NoSQL database that let store and sync data between users in Realtime.
 - <https://firebase.google.com/products/realtime-database>
3. MIT App Inventor- Web application integrated development environment
 - <http://appinventor.mit.edu>

Implementation including Hardware, Software flow & Protocols

1. Web Page



2. Mobile App



Achieved System Functionalities

- Web Page

Flight Schedule Details

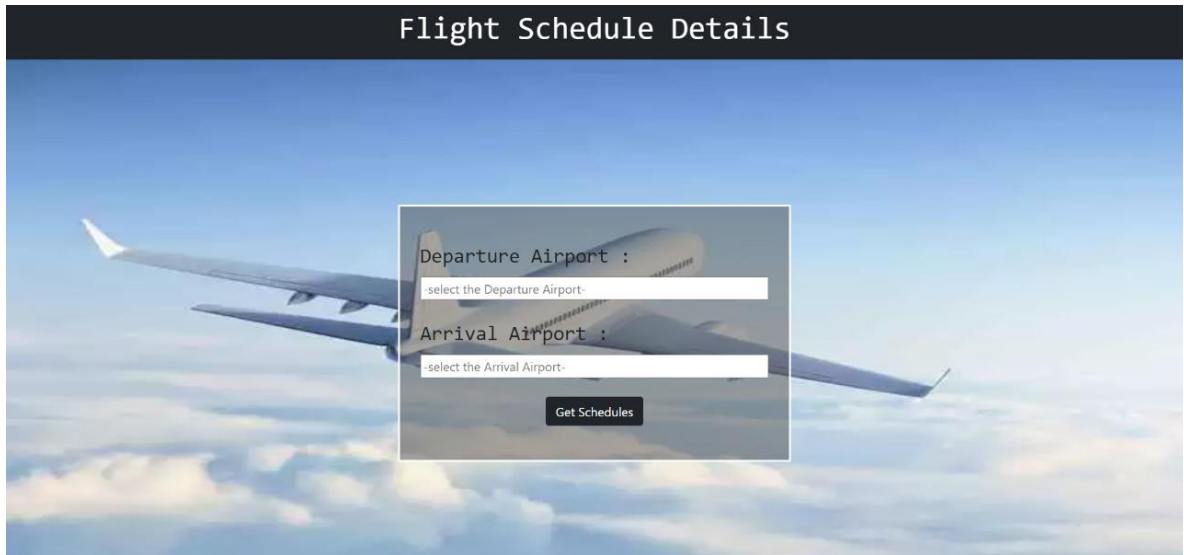


Figure 1 –Web Page Interface

Schedules

No:	Air Line	Departure Date	Departure Time	Arrival Date	Arrival Time
1	Qatar Airways	2021-07-05	13:20:00+00:00(America/Los_Angeles)	2021-07-05	21:59:00+00:00(America/New_York)
2	LATAM Airlines	2021-07-05	09:00:00+00:00(America/Los_Angeles)	2021-07-05	17:45:00+00:00(America/New_York)
3	KLM	2021-07-05	09:00:00+00:00(America/Los_Angeles)	2021-07-05	17:45:00+00:00(America/New_York)
4	Alitalia	2021-07-05	09:00:00+00:00(America/Los_Angeles)	2021-07-05	17:45:00+00:00(America/New_York)
5	Air France	2021-07-05	09:00:00+00:00(America/Los_Angeles)	2021-07-05	17:45:00+00:00(America/New_York)

Go back

There are no scheduled flights at this moment.

Go back

Figure 2 – Achieved results of web interface

- **Mobile Application**



Figure 3 – Mobile Application

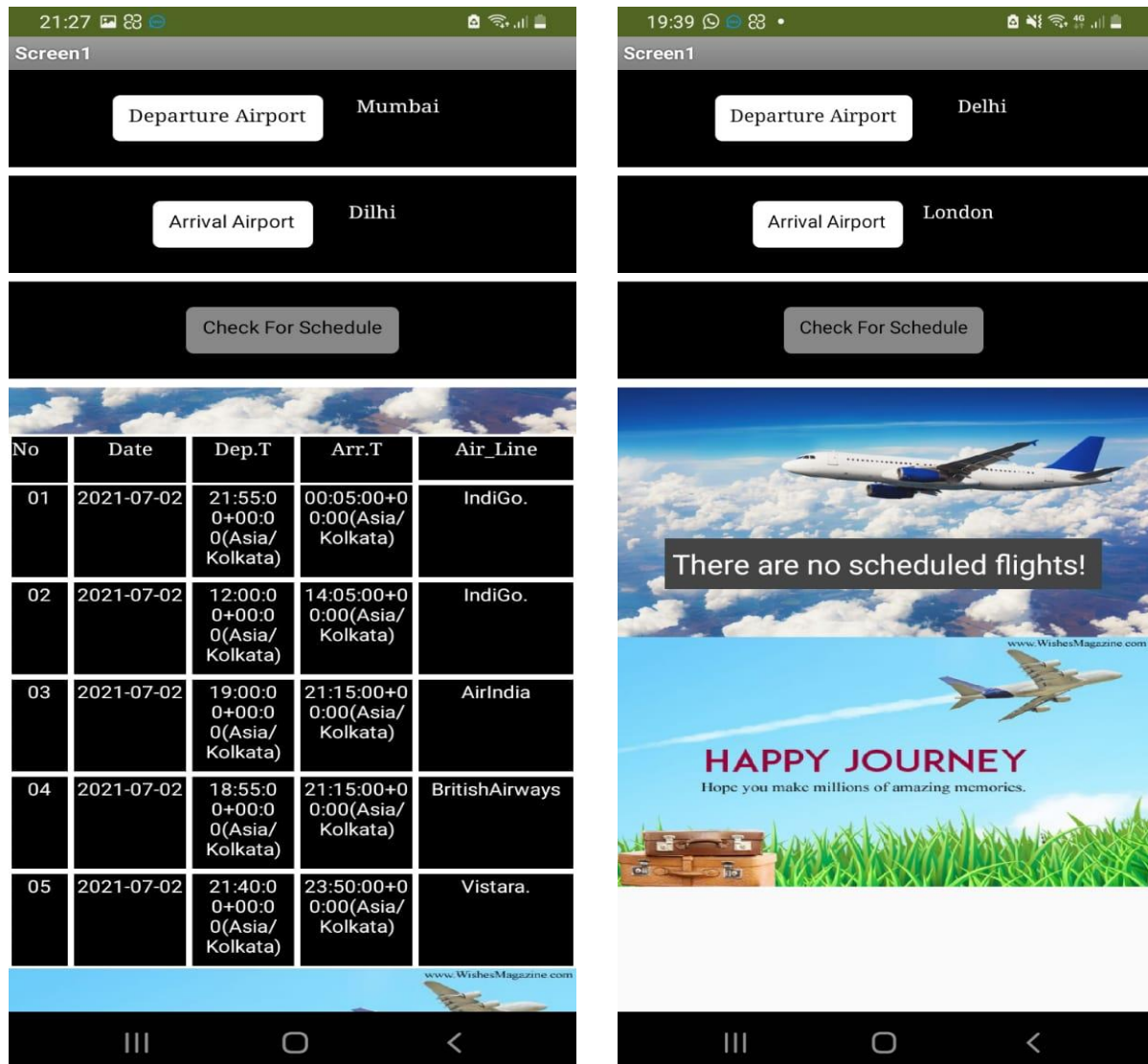


Figure 4 – Achieved results of mobile application