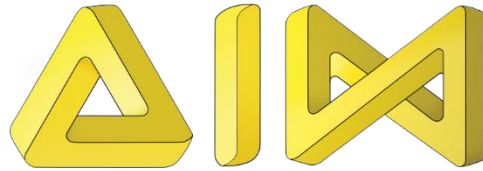**ATL SPACE CHALLENGE 2021**

ACADEMIC YEAR: 2021-22

PROJECT REPORT ON

ISS-TRACKER

STUDENT NAMES :   ISHAAN BHIMWAL, AYANNA BHIMWAL

TEAM NAME   :   TEAM BHIMWAL

THEME   :   EXPLORE SPACE

TOPIC   :   APP DEVELOPMENT

SCHOOL   :   ARMY PUBLIC SCHOOL PUNE

PROJECT GUIDE: MS SUJATA CHILLARA

PGT (CHEMISTRY)

ARMY PUBLIC SCHOOL PUNE

TABLE OF CONTENTS

ISS-TRACKER

Web app: https://ishaanbhimwal.github.io/ISS-Tracker

ISS Tracker in JavaScript

Welcome to our International Space Station (ISS) tracker. The tracker show the current position of ISS along with other important details such as time, latitude, longitude etc. We have built this web app using JavaScript, Leaflet JavaScript library and WTIA REST API. To see more of our work, you can click the links at the bottom of the page.

We have used the Leaflet JS map inside of which we have drawn a marker. ISS image is our marker. Then for every 2 seconds, we perform a GET request to the api.wheretheiss.at, which in turn returns all the information like current latitude, longitude, timezone, speed, altitude, and visibility of ISS. Then we simply update the position of the marker (ISS image) on the map and all the details according to the information we get.

Check out NASA's website to find out more about ISS!

Time:	Latitude:	Longitude:	Speed:	Altitude:	Visibility:
Sun, 10 Oct 2021 18:53:48 GMT	32.41	-141.95	27595.07 km/hr	419.34 km	daylight

Leaflet | Map data © OpenStreetMap contributors, CC-BY-SA, Imagery © Mapbox

This project is made for ATL Space Challenge 2021 by Team Bhimwal of APS Pune under Explore Space Theme.

© 2021 Team Bhimwal

(Screenshot of the project on chrome (627x704px))

INTRODUCTION

ABOUT THE ISS

The International Space Station is a large spacecraft in orbit around Earth. It serves as a home where crews of astronauts and cosmonauts live. Several nations worked together to build and use the space station. The space station flies at an average altitude of 248 miles (400 kilo meters) above Earth. It circles the globe every 90 minutes at a speed of about 17,500 mph (28,000 km/h).
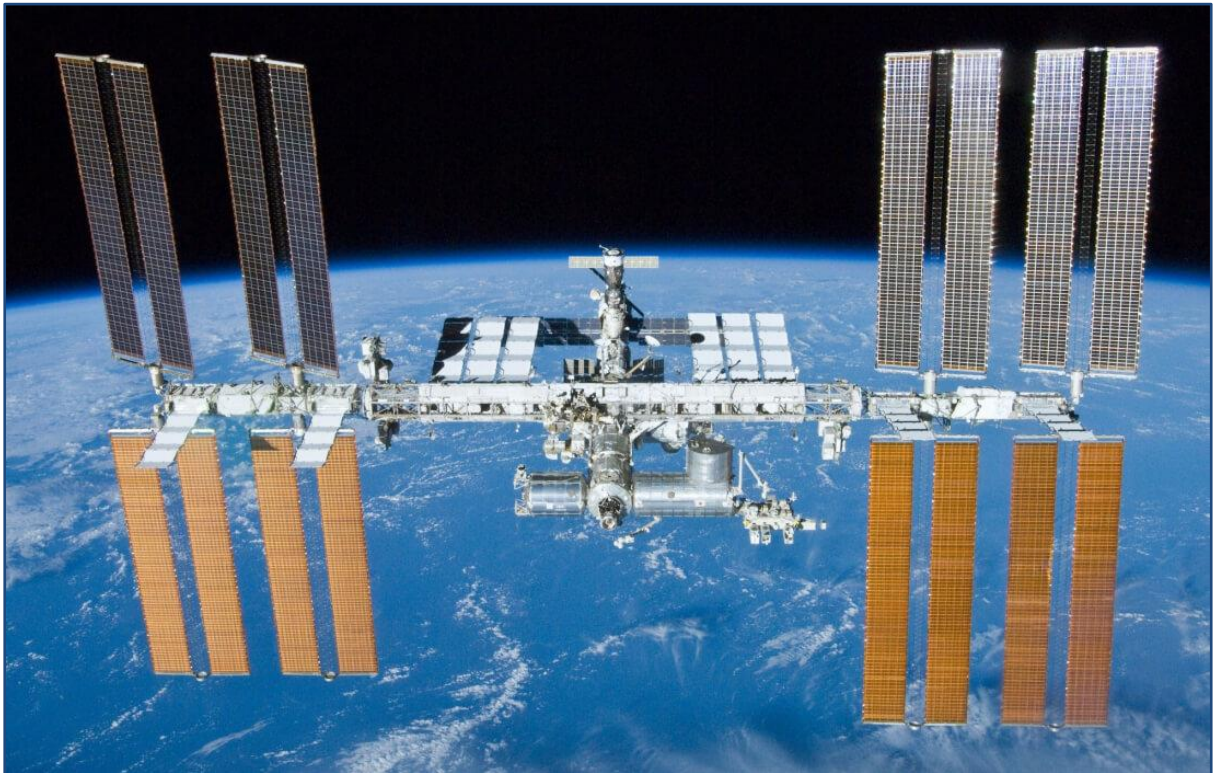
(Image of the ISS from space)

TRACKING THE ISS

This project could help students both develop and work on making use-friendly applications that can help track and visualize satellites in real-time and map their path to retrieve important data. Data such as this can be later use in many areas such as predicting the spotting of ISS over a particular region on a particular time period. This project uses a Web API to find out the current location of the International Space Station (ISS) and plot its location on a map.

OBJECTIVES OF THE PROJECT

The objective of this project is to let the students apply the programming knowledge into a real-world situation/problem and expose the students how programming skills helps in developing a good software.

- Write programs utilizing modern software tools.

- Apply object-oriented programming principles effectively when developing small to medium sized projects.

- Write effective procedural code to solve small to medium sized problems.

- Students will demonstrate a breadth of knowledge in subjects like information practices, as exemplified in the areas of systems, theory and software development.

- Students will demonstrate ability to conduct research or applied Information practices project, requiring writing and presentation skills which exemplify scholarly style in information practices.
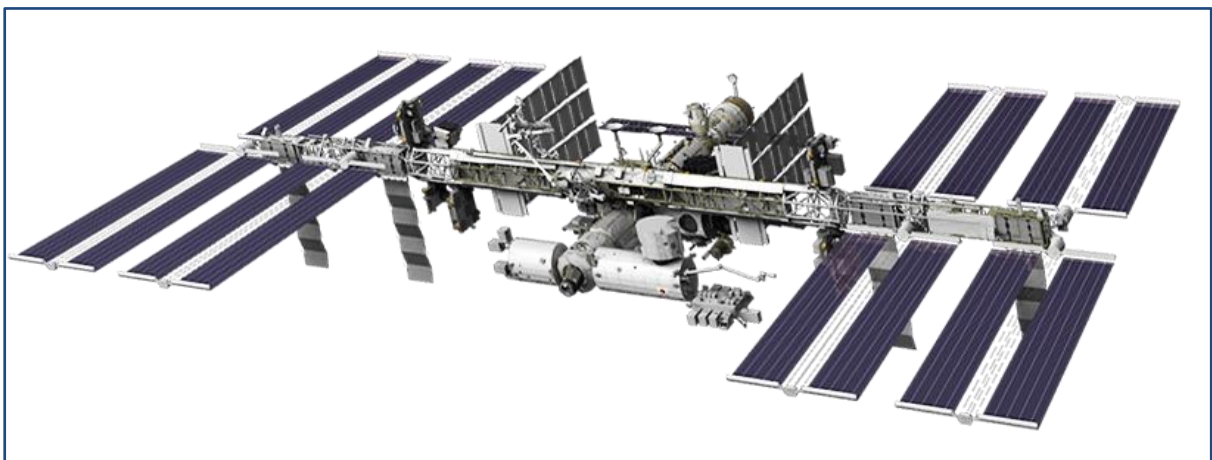
<u>WORKING</u>

The tracker shows the current position of ISS along with other important details such as time, latitude, longitude etc. We have built this web app using JavaScript, Leaflet JavaScript library and WTIA REST API.

First, we need a map. We have used the [Leaflet JS](#) map.
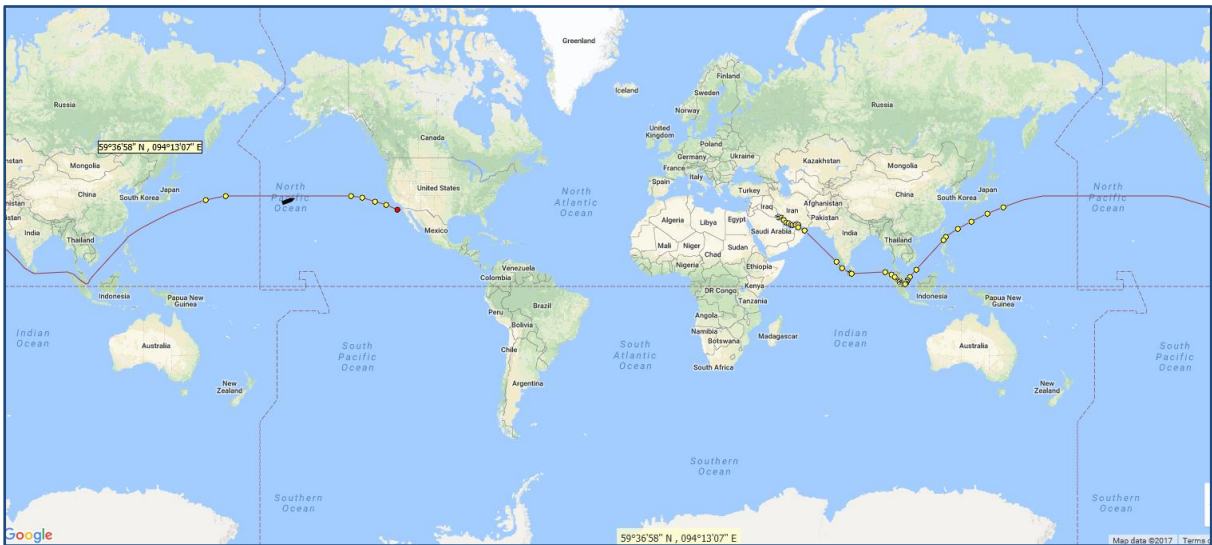

(World map image for background)

Next, we draw a marker. ISS image is our marker.

(ISS image used to depict the marker)

Then for every 2 seconds, we perform a GET request to the api.wheretheiss.at, which in turn returns all the information like current latitude, longitude, time-zone, speed, altitude, and visibility of ISS. Then we simply update the position of the marker (ISS image) on the map and all the details according to the information we get.
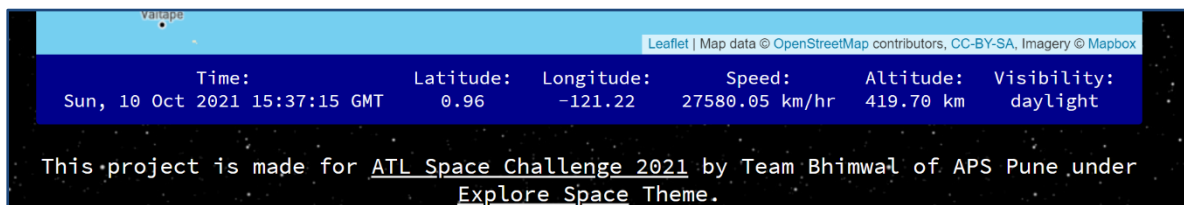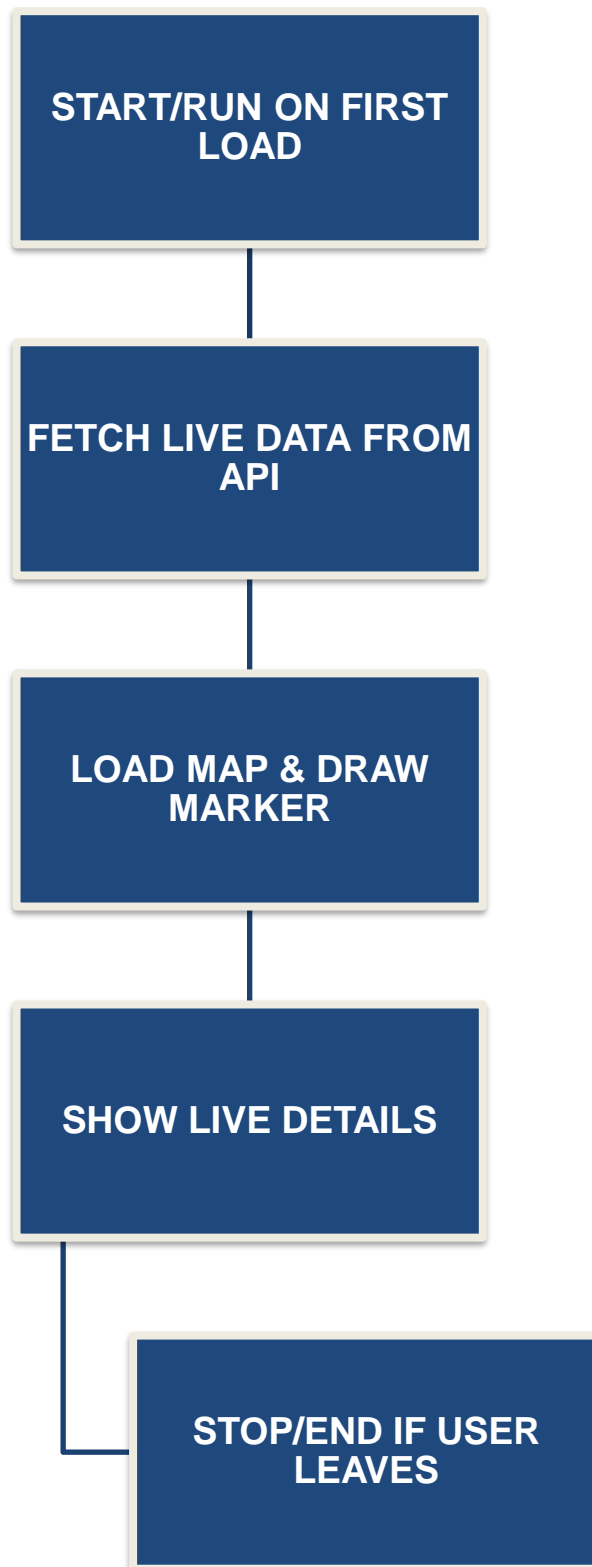

(Details displayed such as time, latitude, longitude etc in real-time)

Marker (ISS image) updates its position according to live stats from the API.
This also updates the details on the main screen.

(Example gif showing live tracking ISS)

FLOW CHART

START/RUN ON FIRST LOAD

FETCH LIVE DATA FROM API

LOAD MAP & DRAW MARKER

SHOW LIVE DETAILS

STOP/END IF USER LEAVES

(Working of the ISS-Tracker (very beginner-friendly representation))

FUTURE IMPROVEMENTS

We would like to at some point extend this app's functionality to predict the spotting of ISS over a particular area after taking user input.

Also, we would like to add a feature that would let users' toggle between light and dark mode for the map according to their preferences.
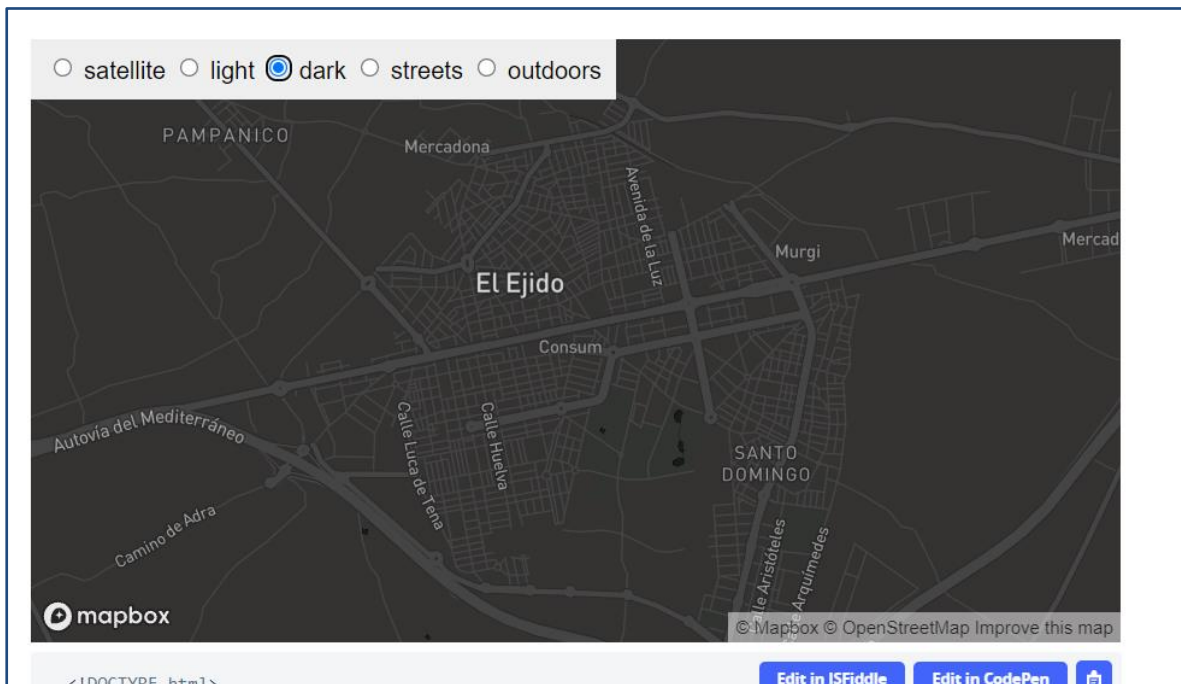
(Example showing how a dark mode toggle could work)

SOURCE CODE

This project is open-sourced on [GitHub](). This step can help others to contribute to the project in future.

HARDWARE AND SOFTWARE REQUIREMENTS

HARDWARE REQUIREMENTS:

- A computer with internet connection

SOFTWARE REQUIREMENTS:

- Any text-editor

BIBLIOGRAPHY

- *Books: [Informatics Practices: A Text Book For Class 12 by Sumita Arora]()*
- *YouTube: [CodeWithHarry](), [freeCodeCamp.org]()*
- *Website: [Stack Overflow](), [W3Schools.com]()*

***