

Team 19

Argus

Team Members:

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Project Title:

Argus: An Environmental Monitoring Application.

Problem Statement:

With today's increasing degradation to our planet earth, it is becoming increasingly important to start addressing our environmental issues and raise awareness about our planet's health. One main hindrance with environmental issues is the lack of urgency by the common people, and one great idea is to help provide the general public with a monitoring application.

While there are many environmental monitoring apps available online, their user interface is often cluttered and slow in performance, rendering their functions moot to the general public. Most of the data being presented is also either past data or readings at the moment the user is checking. In addition, in order to find readings for different environmental activities, users have to search for different websites or monitoring apps online to find the data they are looking for.

To this end, we decided to create Argus, an all-in-one environmental monitoring app which is designed to be minimal, intuitive to use and fast to use. With Argus, users will be informed of the climate activity today and in the future. It displays environmental activities such as current and future values of temperatures, rising sea levels, and greenhouse gas emissions all in one place. It will also monitor and predict natural disaster activity, such as earthquakes.

Project Objectives:

1. Develop an environmental monitoring Web application that the public can use to gain awareness of the condition of our planet.
2. Integrate a user interactive map to display generated data based on the environmental activity that the user selects.
3. Develop a system that retrieves publicly available environmental data necessary for predictions.
4. Develop environmental prediction models.
5. Design a framework capable of displaying multiple different types of environmental data, and easily extensible to allow for more data to be added in the future.
6. Develop a self-updating database to store all previous and current environmental data, along with the current machine learning model predictions.

Stakeholders:

Users: Anyone who is interested in learning more about being environmentally conscious or seeks to track current and future trends in environmental issues.

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Project Deliverables:

- A User-Interactive, Web Based Front-End built on reactJS framework that allows for easy shifting between different environmental consoles and monitors and displays data and trends on the interactive map.
- A modular Back-End setup built with Django framework that processes datasets that correlate to each of the different environmental monitors.
- Create and train Python and TensorFlow Based Time Series Prediction Models using public data sets for forecasting. future trends and probabilities for different environmental and natural disaster activities.
- Create a functional SQL database to hold environmental data and write functional database queries to fetch data.