PROJECT REPORT

ON

"Weather App"

Submitted in the partial fulfilment of requirement for the award of the degree of

Bachelor of Technology (B.Tech.)

In

Electronics And Communication Engineering (ECE)

Under the Supervision of:

T. Santhosh Kumar Reddy

Assistant Professor

Submitted By:

A. Shireesha(20BF1A0406)

CERTIFICATE

This is to certify **A. Shireesha(20BF1A0406)** studying in Sri Venkateswara College of Engineering, KarkamBadi (Batch: 2020-2024) have completed the project1 entitled **"Weather App" at** Sri Venkateswara College of Engineering Under my supervision.

It is further certified that she had attended required number of practical classes at Sri Venkateswara College of Engineering for the completion of their project1 During 6 Semester.

P. Tarangani

Assistant Professor

AKNOWLEDGEMENT

Engineers in all disciplines must acquire knowledge of project making. Student, in particular, will find “project making” as an integral part of their studies that will infuse the spirit of doing practical work in them

The satisfaction that accompanies the successful completion of any task would be incomplete without the mention of the people who made it possible whose constant guidance crowned our efforts with success.

We sincerely express our deep gratitude to the management of our college for giving the liberty to choose and to work on the most relevant project i.e., **“Weather App”.** We are thankful to **N. Sudhakar Reddy** (HOD, ECE) for ensuring that we have a smooth environment at the college and lab. At the very outset we would like to offer our never ending thanks to our project supervisor **P. Tarangani** (Assistant Processor) who helped us with our project from the beginning till the end. Her continuous surveillance over our work allowed us to work more efficiently.

A. Shireesha(20BF1A0406)

ABSTRACT

Weather prediction is the application of science and technology to predict the state of the atmosphere for a given location. Here this system will predict weather based on parameters such as temperature, humidity and wind. This System is a web application with effective graphical user interface. To predict the future's weather condition, the variation in the conditions in past years must be utilized. The probability that it will match within the span of adjacent fortnight of system with parameters such as temperature, humidity and wind. It will predict weather based on previous record therefore prediction will prove reliable. This system can be used in Air Traffic, Marine, Agriculture, Forestry, Military, and Navy etc.

CONTENTS

1.INTRODUCTION

1.1 Overview

This application will show the temperature of a location. To fetch weather information, we will need an **API.** An API (Application Programming Interface) is a function that allows applications to interact and share data using various components and microservices. For this project, we will be using **OpenWeather API** for fetching weather data. OpenWeather API provides a fast and elegant way to fetch weather data

The prime objective of weather app is the ability to display the weather minute basis accurately, hourly, daily, weekly and even monthly. Weather forecasting entails predicting how the present state of the atmosphere will change. Present weather conditions are obtained by ground observations, observations from ships, observation from aircraft, radio sounds, doppler radar and satellites.

These Weather App displays 5-Days Forecast Temperature, Humidity And Speed of Wind using Open Weather API. Open Weather App is an ad-free & free-to-use application that will help you plan your time around the weather in a concise and minimalistic manner.

1.2 Purpose

The prime objective of any weather app is the ability to display the weather minute basis accurately, hourly, daily, weekly and even monthly.

Weather forecasting is the application of current technology and science to predict the state of the atmosphere for a future time and a given location.

The elements of weather and climate are those quantities or properties that are measured regularly and include: air temperature, humidity, type and amount of clouds, type and amount of precipitation, air pressure, and wind speed and direction.

Weather App forecasts are made by collecting as much data as possible about the current state of the atmosphere (particularly the temperature, humidity and wind) and using understanding of atmospheric processes (through meteorology) to determine how the atmosphere evolves in the future.

2. LITERATURE SURVEY

2.1 Existing Problem

Some of the problem comes from the complexity of weather: small changes in the atmosphere's moisture can have big effects. And geographies with microclimates (think waterfronts, mountains, etc.) are often given one sweeping forecast, making it inaccurate for certain users. Arguably the biggest issue: our expectations.

Weather forecasts are always a game of prediction and probabilities, but these apps seem to fail more often than they should. At best, they perform about as well as meteorologists, but some of the most popular one's fare much worse. The cult favorite Dark Sky, for example, which shut down earlier this year and was rolled into the Apple Weather app, accurately predicted the high temperature in my zip code only 39 percent of the time, according to Forecast Advisor, which evaluates online weather providers. The Weather Channel's app, by comparison, comes in at 83 percent.

Weather apps might be less reliable for another reason too. When it comes to predicting severe weather such as snow, small changes in atmospheric moisture the type of change an experienced forecaster might notice can cause huge variances in precipitation outcomes. An app with no human curation might choose to average the model's range of outcomes, producing a forecast that doesn't reflect the dynamic situation on the ground.

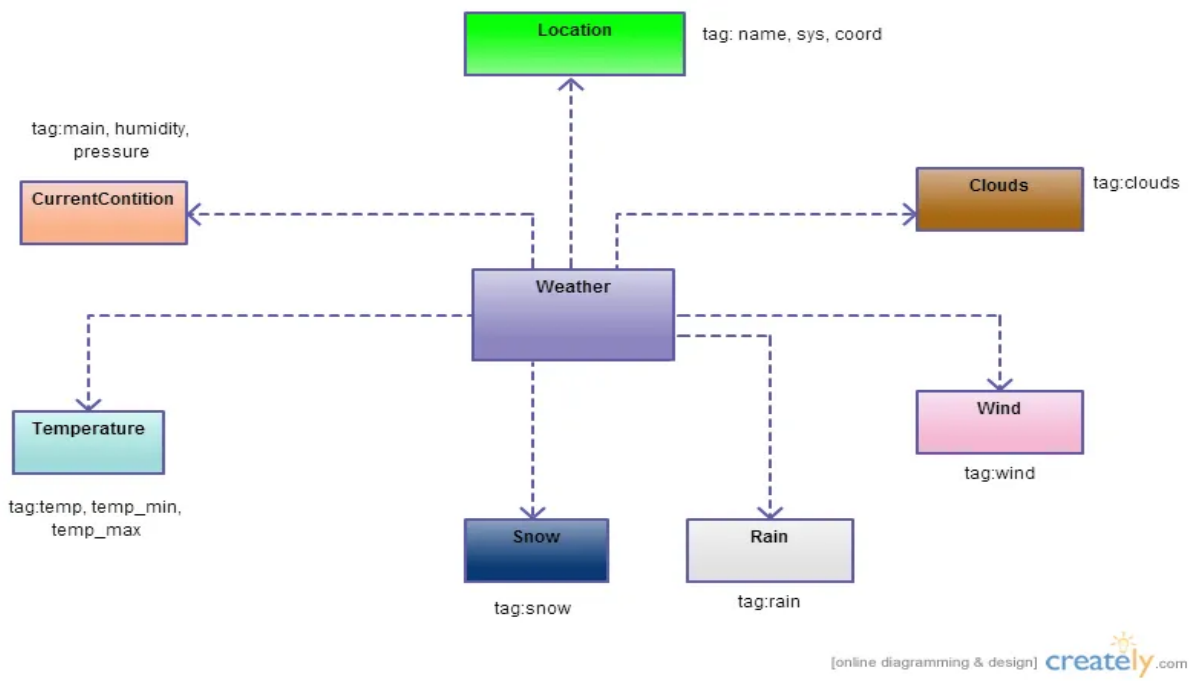
2.2 Proposed Solution:

A Weather API (Application Programming Interface) enables the automatic querying of weather data, to deliver specific information based on given parameters – such as location and time. The best Weather APIs can provide real-time or forecast weather data, depending on the user's needs.

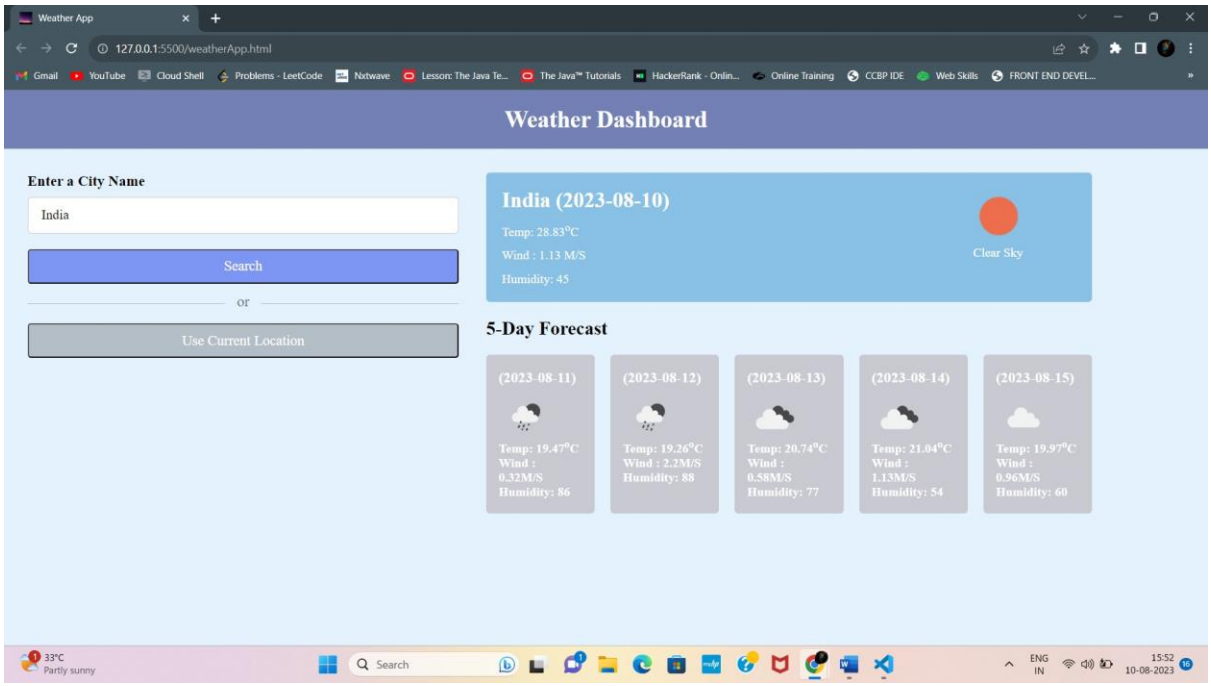
OpenWeather API Provides the accurate Data about Temperature, Humidity, Speed of the Wind

3. THEORETICAL ANALYSIS

3.1Block Diagram



4.RESULT



5.ADVANTAGES & DISADVANTAGES

5.1 Advantages

- Instant information availability. Improved Weather forecast. Easy Flow of Information. Widget Support.
- One of the biggest benefits of the weather station is its ability to collect accurate data. They take measurements every few minutes and record them automatically. This means you can be sure that you're getting real-time information about current conditions.
- The weather station helped take preventive measures against destructive rains, strong winds, severe high or low temperatures, and pests and

diseases. Using a weather station helps you cope with frost and high temperatures in summer.

5.2 Disadvantages

- The weather changes very rapidly, and even the most reliable computer models are prone to error and inconsistencies. The apps do not take geography or microclimates into account and have problems forecasting for snow and thunderstorms.
- weather is extremely difficult to forecast correctly.
- it is expensive to monitor so many variables from many sources.
- **Limited Reach:** Weather forecasts are not available for many remote or sparsely populated areas, making it difficult for people in these areas to prepare for severe weather. Model Limitations: Forecasting models can only make predictions based on existing data and are limited by the quality and quantity of that data.

6.APPLICATIONS

- A weather app is a way to use your mobile phone to check current, past, or future weather patterns and weather maps.
- The most common application for weather radar is to monitor weather conditions, nationally and locally.
- Radar remote sensing uses electromagnetic energy backscattered from ground targets to extract physical and dielectric behaviour. The advantage of radar imaging lies in its capability of all-hour and all-weather imaging.

7.CONCLUSION

weather forecasts are increasingly accurate and useful, and their benefits extend widely across the economy. While much has been accomplished in improving weather forecasts, there remains much room for improvement. The forecasting community is working closely with multiple stakeholders to ensure that forecasts and warnings meet their specific needs. Simultaneously, they are developing new technologies and observational networks that can enhance forecaster skill and the value of their services to their users.

Weather is the state of the atmosphere, describing for example the degree to which it is hot or cold, wet or dry, calm or stormy, clear or cloudy. On Earth, most weather phenomena occur in the lowest layer of the planet's atmosphere, the troposphere, just below the stratosphere. They are temperature, atmospheric pressure, wind, humidity, precipitation, and cloudiness. Together, these components describe the weather at any given time.

8.FUTURE SCOPE

Weather forecasts are made by collecting as much data as possible about the current state of the atmosphere (particularly the temperature, humidity and wind) and using understanding of atmospheric processes (through meteorology) to determine how the atmosphere evolves in the future.
As machine learning advances, more models start integrating, and going with it accuracy becomes more better and forecasting will become increasingly accurate. More scope and potential of global nowcasting, which is relatively new addition to weather forecasting.

The IoT weather reporting system has an application for farmers where they can ensure higher productivity of crops and lower the risk of weather hazards via the IoT weather.