Currently the program supports five different weather services. All are free to use. Most will require an account and API key. OpenMeteo is the only service that does not require an account or API key. I recommend you try this service first since it's easy to get started.

The reason for multiple weather services is we are using free weather calls, as you can probably guess free does not last forever in many cases. If one weather service should pull the plug on their free service it's easy enough to configure the clock for another one. I can add more to the clock if someone knows of other weather services that are free.

Details

The most accurate way for the weather service to know your location is to use the latitude and longitude fields. Some of the weather services do support the zip/postal code. The details below will show who supports zip/postal. Use a web site to figure out your lat/long. This is the site I used:

https://www.latlong.net/

The logic for all the weather services is latitude/longitude will be used as the default even if you entered a postal code. If you want the postal code to work you must blank out the latitude and longitude fields.   All the weather services require you to setup the metric or imperial system for unit of measures. It is a yes/no response on the web setup or params.h file.

Unless otherwise noted the weather will be checked every 5 minutes.

If you plan on trying multiple weather services there is an array called apikeys in params.h where you can store your API keys. If you use this method the web interface will be ignored if you change a key there.

Service 4 – OpenMeteo.com

This service is what I recommend everyone try first. It requires no account setup or API key. Get your latitude and longitude setup for your location, they do not support the zip/postal code.

Service 1 – WeatherAPI.com

You need to setup an account and get an API key. You also need to tell them what fields you want. From the dashboard settings select API response fields. You want the following fields checked:

Current weather – temp_c, temp_f, is_day, text, icon, code, wind_mph, wind_kph,wind_degree

                              wind_dir, humidity, cloud

ALL other fields must be unchecked for all categories like forecast, day, astro, hour and marine

WeatherAPI supports zip/postal code for USA, Canada and UK. Do not use the zip + 4, just the 5 digit code in the USA. The postal code is also used for other ways to identify your location. For example you could enter auto:ip into that field and it will determine an approximate location based on your IP address. It also could have a major city in the postal field like Paris. Their API docs explain this in more detail. It's the option called q= under Request Parameters.

Service 2 – WeatherBit.io

This service supports the postal/zip code. Their docs claim this works for any country in the world. They also support latitude and longitude. Their free service is limited to 50 calls per day. The weather logic will only check the weather every 30 minutes because of that limit. You do not have to setup any codes on this service, all you need to get is the API key.

Service 3 – PirateWeather.net

This weather service gave me the feeling they are still in a learning mode. I found several bugs and limitations in their service. As a result there is no weather code to have the Morphing ClockQ show the kind of weather, like cloudy, rain, snow .... Maybe down the road they will enhance their interface and I can add this feature later on. They do not support postal/zip codes, you will need the lat/long settings to setup your location. Day / night mode is also not available.

Service 5 – WeatherUnlocked.com

This service supports postal/zip code or lat/long. You must setup your 2 character country code for the postal/zip code to work. If you are not sure about your country code use their page to look it up:

https://developer.weatherunlocked.com/documentation/localweather/current

This service is odd, it requires two keys. The APP.ID.KEY will be setup in the 'wdefine' field in params.h. It can also be setup on the web config which is called Define. Day / Night mode not available.

Other Weather services I researched

Open Weather Map - discontinued their 2.5 API service in June 2024. Their new 3.0 API service requires your account to have a credit card on file. It's free to a point but if the clock were to use more calls than allowed it would charge your credit card. For this reason I have decided to stop using their service.

WeatherStack – only 250 calls per month. That would be 8 checks per day, not worth it.

Tomorrow.io – could not get it working, their support was useless. I suspect they require a SSL connection which is impractical on this type of device for root certificates.

Meteoblue – Their free service is for one year and then I'm not sure what happens.

Microsoft Azure weather – Too complicated for setup, expires after 1 year.

Visual Crossing – SSL only

WorldWeatherOnline – not free.

MyWeather2 – terms of use are not possible with the clock display

FrogCast – only free for 400 calls, that's not free!

Meteomatics – not free

AccuWeather – can't get it working, the Arduino bombs on the JSON return string. It's too large of a response. There might be a way of having the JSON library directly stream the data character by character and use filters to reduce the size of the string. Right now I'm not up to the task!