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<p style="text-align:center">WiFi-enabled Propeller Clock</p>

Project: The overall project is a "propeller clock". It is a spinning strip of LEDs whose lights are updated rapidly in order to create the appearance of an image, in this case the current time.

Addition: My addition to the project was to use the Arduino MKR1000's built-in WiFi module and the "WiFi101" library to get the time. This, in conjunction with the Arduino's "micros" function, can then be used to get the current time at any point in the future (until the micros function overflows). The central difficulty to this addition lies in using the new module and library.

Image of Result:
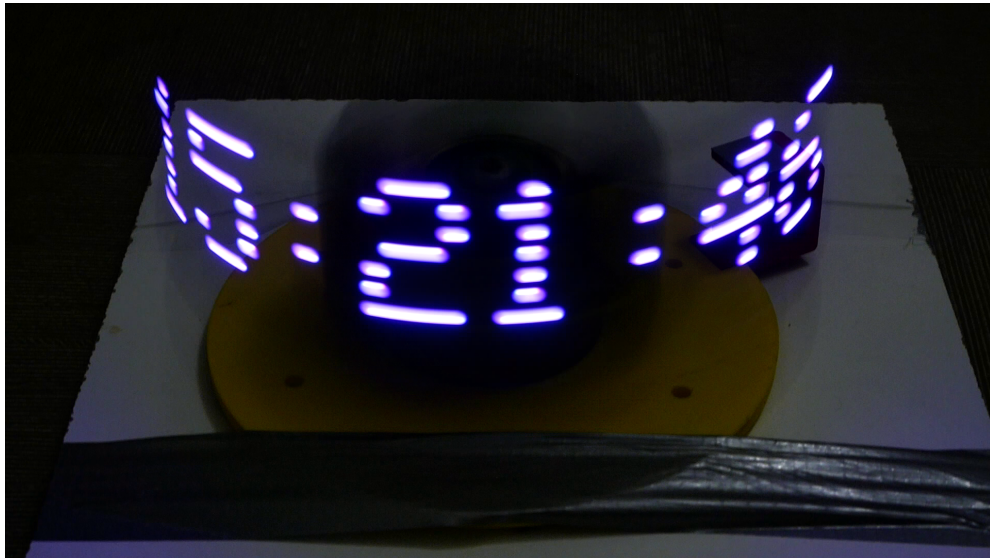
Approach: The first step was to connect to WiFi and a website of choice. Luckily, the library is well documented and the most difficult part was getting a reliable internet connection. The next main hurdle was in parsing out the time from this response and changing it into a usable format. I needed it in both text format, to display, and as a total number of seconds, to use along with

"micros" to get the relative time. Although this required much troubleshooting and code, the final integration step was simple. All of the code is in a file containing two main functions. One will connect to wifi and get the time from the API. This can be called as the system starts up. The next uses this time to compute the current time, and returns it as text. This can be called regularly in the loop, so that the time will always be displayed correctly. Combined, these allowed the code to be easily integrated into the existing propeller to make it the clock seen above.