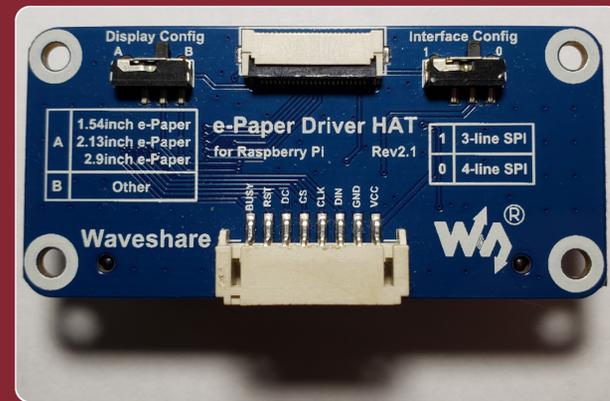
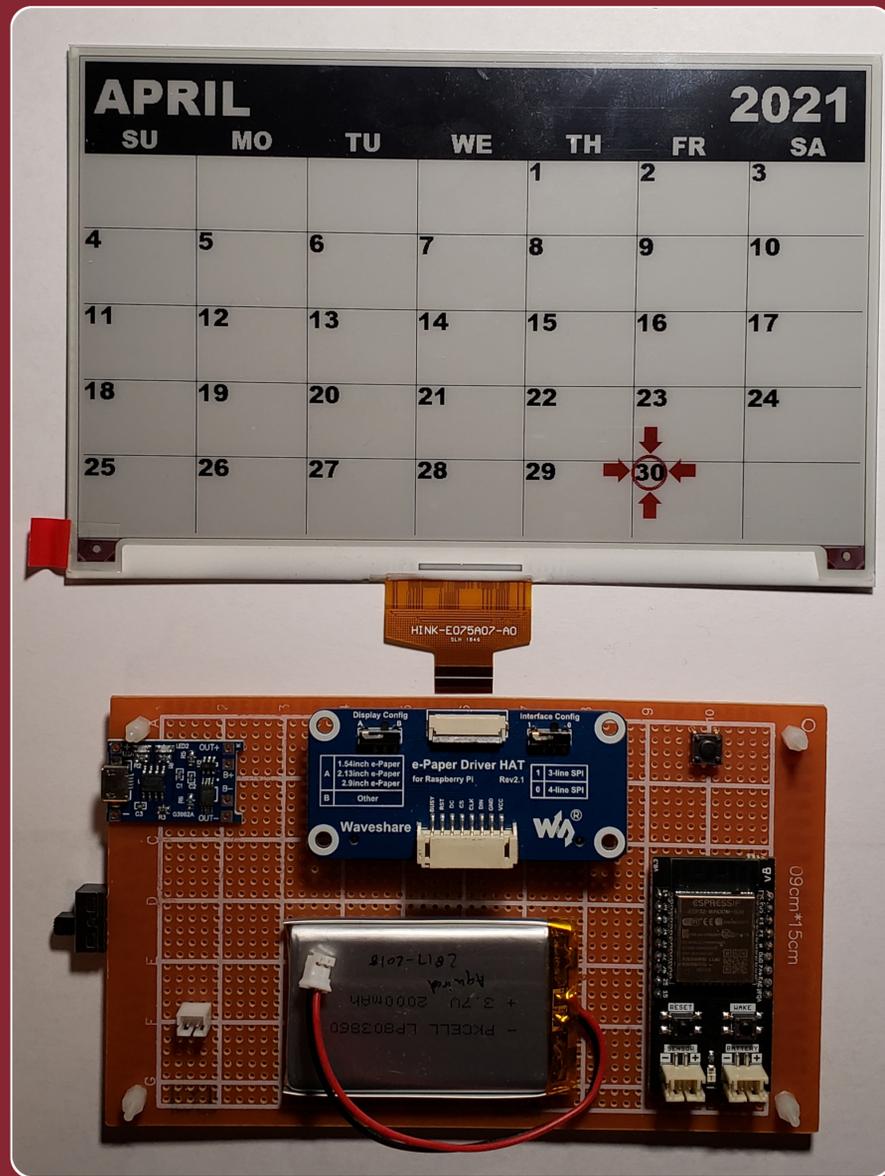
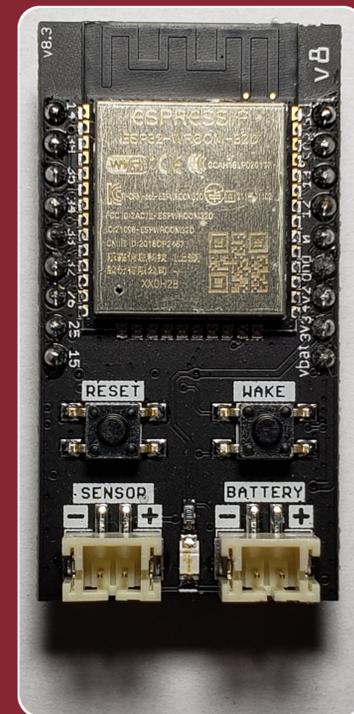


Electronic Calendar

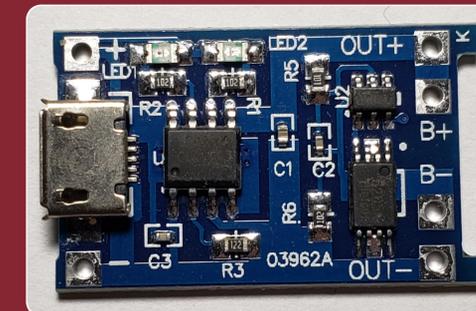
Imagine a low power electronic calendar connected to your Google agenda through the internet. Just like normal paper there is no backlight meaning the E-paper Calendar won't keep you up at night. Best of all there is no pen or paper, just update your calendar on your phone!



This component is the driver for the E-paper or E-ink display. Essentially it is the bridge between the brain of the project and the display. To the right is a picture of the display which works with passive light reflective charged particles to display colors. Since it is reflective it means the display does not produce light nor need to be powered to display any image after being refreshed. Although its color range is limited to black, white, and red; it has an extremely low current consumption.



This is the brains of the operation, it is a microcontroller that connects to the internet, fetches google calendar events, creates graphics for the display, then falls into a deep sleep for a couple of hours. It utilizes an ESP32 with an on-board Real-Time Clock (RTC). Normally when the ESP32 is powered on, it stays connected to the internet which wastes battery life. Thus, this specific board has a built in RTC which allows the ESP32 to be completely powered off until woken up periodically. Once woken the ESP32 checks for new events and refreshes the display. This allows for the battery life be weeks as opposed to hours.



This is the charge circuit; it connects the battery, a switch, and the brain. It recharges the battery when the project is turned off and plugged in to a micro-USB. It also protects the battery from overcharge.



The battery shown is called a lithium polymer battery that can be recharged within a few short hours. It can also be replaced should the user want a larger capacity.