



TIMESQUARE Wordclock

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<https://learn.adafruit.com/timesquare-wordclock>

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Overview

The time told in words as an extension to the [TIMESQUARE Watch Kit \(https://adafru.it/kKc\)](https://adafru.it/kKc).

With a custom lasercut or 3D printed faceplate and new code, the [TIMESQUARE watch \(https://adafru.it/kKc\)](https://adafru.it/kKc) can be modified to have a new wordclock mode!



Faceplates and modified code are available at:

<https://github.com/andydoro/Wordclock-Wristwatch> (<https://adafru.it/kKd>)

Faceplates are also available on [Thingiverse \(https://adafru.it/kKe\)](https://adafru.it/kKe) and [Shape \(https://adafru.it/kKf\)](https://adafru.it/kKf)
[ways \(https://adafru.it/kKA\)](https://adafru.it/kKA)

Create Faceplate

You have two options for creating your faceplate: it can be lasercut or 3D printed.

There are two versions of this faceplate available. One uses a blocky, stencil font, and the other uses a thinner, Helvetica-based font adapted for this project. The files are available on github in STL and SVG form:

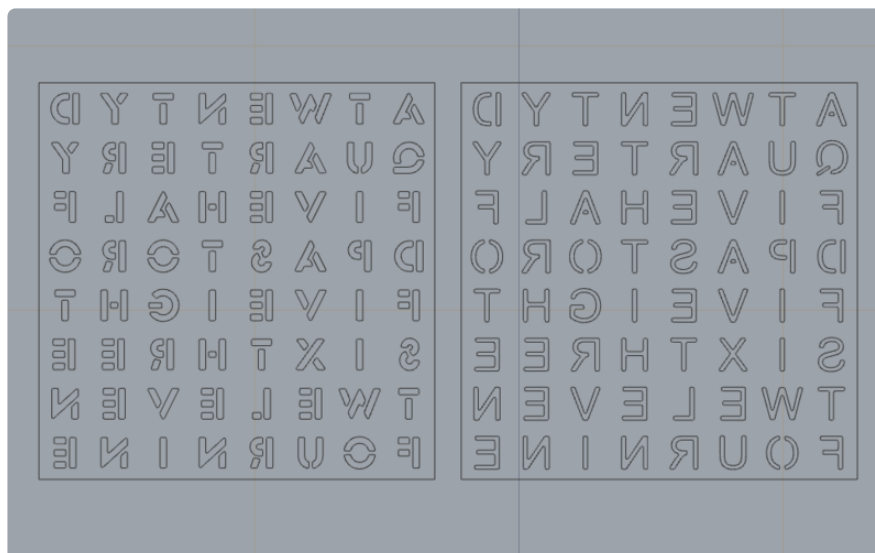
<https://github.com/andydoro/Wordclock-Wristwatch/tree/master/faceplates%20%26%20housing> (<https://adafru.it/19rD>)

Files are also available on [Thingiverse](https://adafru.it/tre) (<https://adafru.it/tre>).

Laser cutting

If you want to laser cut your own faceplate, it is recommended that you use a material such as 1.5mm thick acrylic or something thinner. For acrylic, cut the faceplate with the text mirrored (see image below) so that it appears backwards while being cut. This ensures that the sharp, detailed edges on the underside are face up when installed on the timesquare watch, giving the display a crisp and easy-to-read quality.

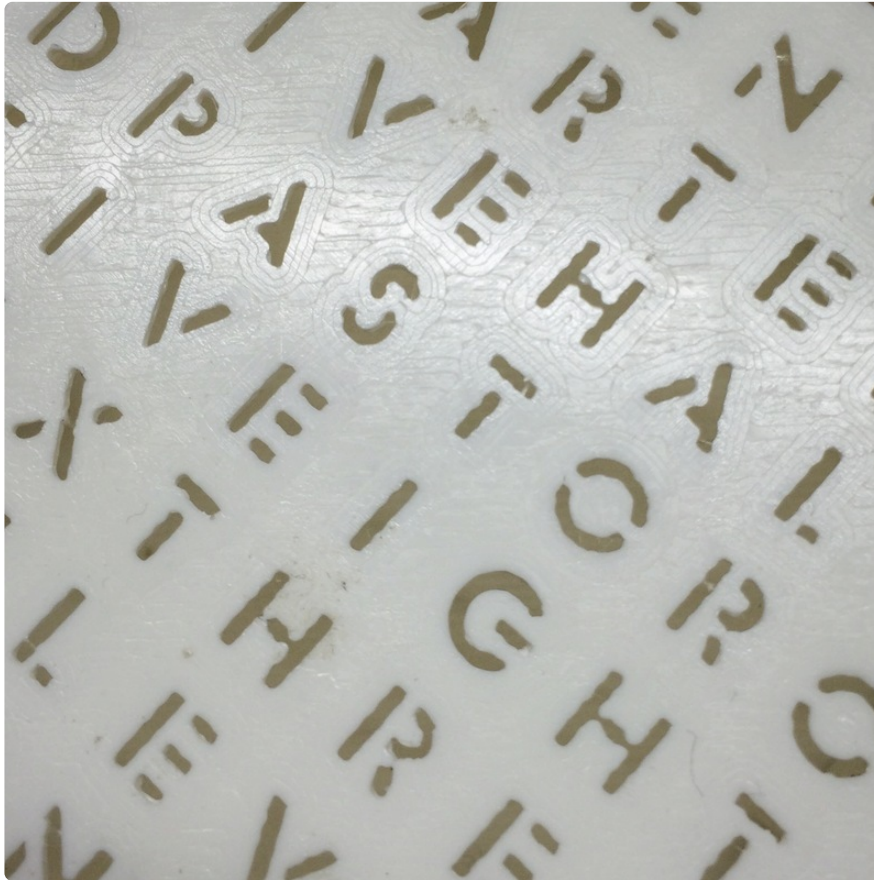
The faceplate should be exactly 1.5" (38.1mm) on a side to match the outline of the timesquare watch.



3D printing

3D printing allows you to experiment with a wide range of materials and properties for your faceplate. If you're using an FDM printer to make your faceplate, make sure you

have a 0.4mm nozzle or smaller installed on your printer to best capture the small text. A slow print speed is essential for this faceplate, and filaments with a shore hardness of ~100A yield the best results.



If you're interested in having the faceplate printed for you, they are also available through [Shapeways](https://adafru.it/19rE) (<https://adafru.it/19rE>).



Uploading Code

The [code](https://adafru.it/kKB) for this project is a fork from the original TIMESQUARE project. It adds an additional wordclock mode to the existing display modes.

You can download the code from github here: <https://github.com/andydoro/Wordclock-Wristwatch>

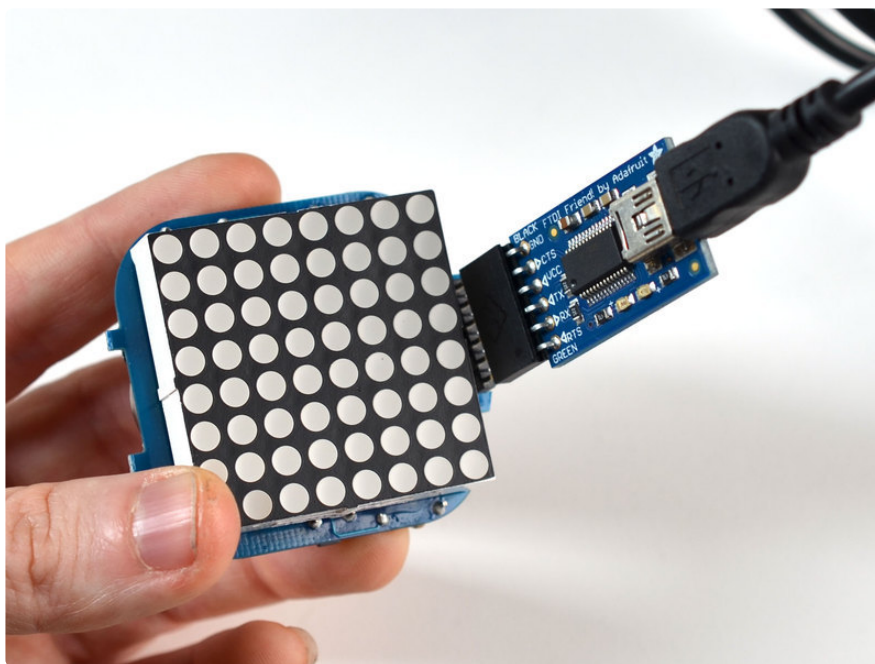
You'll also need the [Adafruit_GFX](https://adafru.it/aJa), [Adafruit_BusIO](https://adafru.it/GxD), [RTCLib](https://adafru.it/c7r) and [DST_RTC](https://adafru.it/BR3) Arduino libraries installed.

Follow the directions in [this guide](https://adafru.it/kKC) to upload new firmware to your TIMESQUARE wristwatch.

Open the **WordclockWatch.ino** sketch in your Arduino IDE.

You will need an [FTDI cable](http://adafru.it/70) or [FTDI friend](http://adafru.it/284). Make sure to have the FTDI cable or friend oriented correctly! The FTDI cable works best with some [extra long 6-pin headers](http://adafru.it/400). You should be able to "press fit" the FTDI cable or FTDI friend pins into the holes so you don't have to solder them in.

Select **Lilypad Arduino w/ ATmega328** as the "board" type.



You should be able to use the TIMESQUARE watch as before, except there will be a new Wordclock Mode between "Moon Phase" and "Battery Gauge"

The new sequence will be:

↔Marquee↔Binary↔Moon Phase↔Wordclock↔Battery Gauge↔

As with the other display modes, Wordclock mode will display for a few seconds after you tap one of the side buttons- after you've attached the faceplate, of course!

Attach Faceplate

Once you've created the faceplate and uploaded the new firmware, you'll need to affix the faceplate over the TIMESQUARE LED matrix.

To make sure you have the faceplate lined up correctly check that the text on the side of the LED matrix lines up with the left edge of your faceplate. You can also test out the orientation by placing the faceplate on top of the LED matrix while it's in Wordclock mode to make sure the right letters are being illuminated.

It helps to add a small strip or two of clear double-sided tape to the underside of the faceplate to help attach it to the watch. The edges of the faceplate can then be affixed using Scotch or some other type of adhesive tape.

