

Hollow Shadow Clock - Projecting Time!



DIY Machines

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Summary

3D Printed analogue Clock with amazingly large projections and magically moving hour hand! A sure talking point.



8.44 hrs



8 pcs



0.20 mm



0.40 mm



PET



144 g



Prusa MK4

[Hobby & Makers](#) > [Electronics](#)

Tags: [led](#) [clock](#) [time](#) [design](#) [art](#) [wifi](#) [arduino](#)

[esp8266](#) [ws2812b](#) [wemosd1mini](#) [projector](#) [ledlighting](#)

[hollow](#)

Please do 'like' this project here on Printables. It really does help me to continue to design, document, and share these projects for free. 😊
3D Print and assemble your own Hollow Shadow Clock with amazing projections and magical motions!

The Hollow Shadow Clock is a time telling marvel. First of, can you figure out how the hour hand is being controlled? Once you've solved that, continue to marvel at its larger than life ability to project an analogue clock face onto any surface. Control the colour and brightness with two

discreet buttons, or connect to your clock via its integrated web-server and WiFi connection to program an automated weekly schedule. Have it wake you up in the morning, or light up to remind you it's time to finish work!

This is a predominately 3D printed project and my detailed instructions will ensure you have every success in building one of your own.

This project is based on the Hollow Clock project by Shiura: <https://shiura.com/>

Buy a kit of parts from Etsy here: <https://diymachines.etsy.com/uk/listing/1805326144/hollow-shadow-clock-electronics-kit>

List of items used in this project and where to find them separately:

- M3 Nuts (x3): <https://geni.us/M3Bolts>
- M3x8 Bolts (x6): <https://geni.us/M3Bolts>
- LED 3W WS2811(x1): <https://geni.us/3wWS2811LED>
- ULN2003 (x1): <https://geni.us/ULN2003>
- Ceramic Capacitor - 10nF (x1): <https://geni.us/CeramicCapacitors>
- Stepper Motor (x1): <https://geni.us/28BYJ-48-StepperMotor>
- 12mm Tactile Button (x2): <https://geni.us/12mmTallTactile>
- DC Female Barrel Connector (x1): <https://geni.us/HighAmpDCBarrel>
- Slide Switch (x1): <https://geni.us/SlideSwitchSPDT>
- ESP8266 Dev Board: <https://geni.us/wemosD1>
- 3x8mm Magnets (x3): <https://geni.us/3x8mmMagnets>
- Self Tapping Screw M2x6mm (x3): <https://geni.us/2mmSelfTappingScrews>
- Self Tapping Screw M2x12mm (1): <https://geni.us/2mmSelfTappingScrews>
- Projects PCB (x1)
- Power Supply 5v (x1) <https://geni.us/5vPowerSupply5a>
- 3D Jakes filament: <https://geni.us/3DJake>
- Projects PCB: https://www.pcbway.com/project/shareproject/Hollow_Shadow_Clock_c2d6052e.html

Update April 2025: I've added a 5mm longer hour hand for anyone who finds the magnets can't hold theirs in place.

I've been using the OmniFixo 'helping hands' for this project and have found they are significantly better than alligator clips and traditional methods. I've not been paid to say this - but they are something I genuinely personally recommend. Find out more here: <https://omnifixo.com/en-gb>

I use a Prusa MK4S for my projects and highly recommend both it and the Prusa Mini. If I inspired you to take up 3D printing please consider

purchasing a printer via this link: http://shop.prusa3d.com/#a_aid=diymachines

Prusa support my channel when you use that link at no cost to yourself. :)

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3D printed parts, wiring diagrams, FAQ etc can be found here: <https://diymachines.co.uk>

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SAY THANKS:

Provide continual and dependable support through Patreon: <https://www.patreon.com/diymachines>

Or join this channel on Youtube Memberships: <https://www.youtube.com/channel/UC3jc4X-kEq-dEDYhQ8QoYnQ/join>

Buy me a coffee to say thanks: <https://ko-fi.com/diymachines>

SUBSCRIBE:

- https://www.youtube.com/channel/UC3jc4X-kEq-dEDYhQ8QoYnQ?sub_confirmation=1
- INSTAGRAM: https://www.instagram.com/diy_machines
- FACEBOOK: <https://www.facebook.com/diymachines/>
- ETSY: <https://www.etsy.com/uk/shop/DIYMachines>

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List of camera and lighting equipment I use:

- Sony A7 III: <https://geni.us/Sony-Alpha7-III>
- Tamron 28-75mm F2.8 RXD A036SF
- Lens for Sony-FE : <https://geni.us/TamronRXD-28-75mm>
- Aputure Amaran HR672C: <https://geni.us/AputureAmaranHR672C>
- Aputure MC: <https://geni.us/FAPGL>
- RØDE VideoMic Pro+: <https://geni.us/RodeVideoMic-ProPlus>
- Blue Snowball iCE: <https://geni.us/BlueSnowball-iCE>
- Philips Hue Lightstrip Plus: <https://geni.us/PhilipsHue-LightStrip>

Disclaimer: This video is shared for demonstration purposes only. DIY Projects are purely “at your own risk”. Unfamiliarity with tools and processes can be dangerous. DIY Machines Ltd will not be held responsible for any injury due to the misuse or misunderstanding of any DIY project.

This remix is based on



Hollow Clock 4

by shiura

Model files



hour-hand.3mf



minute-hand-cap.3mf



rotor-cover.3mf



worm-gear.3mf



minute-hand-cap.stl



rear-cover.stl



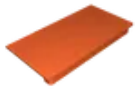
hour-rotor.3mf



minute-rotor.3mf



min-drive-gear-axis.stl



clock-base-lid.stl



bevel-gear-small-hole.stl



bevel-gear-standard-hole.stl



clock-base.stl



worm-gear.stl



hour-hand.stl



min-drive-gear.stl



rotor-cover.stl



light-cone.stl



hour-rotor.stl



minute-rotor.stl



hour-hand-5mm-longer.3mf

Print files



minute-hand-cap_04n_02mm_petg_mk4is_1m.bgcode

PET 0.40 mm 0.20 mm 0.02 hrs 1 g Prusa MK4



hour-hand_04n_02mm_petg_mk4is_10m.bgcode

PET 0.40 mm 0.20 mm 0.16 hrs 2 g Prusa MK4



worm-gear_04n_02mm_petg_mk4is_21m.bgcode

PET 0.40 mm 0.20 mm 0.35 hrs 2 g Prusa MK4



light-cone_04n_02mm_petg_mk4is_24m.bgcode

PET 0.40 mm 0.20 mm 0.39 hrs 5 g Prusa MK4



light-cone_04n_02mm_petg_mk4is_24m.gcode

PET 0.40 mm 0.20 mm 0.39 hrs 5 g Prusa MK4



rotor-cover_04n_02mm_petg_mk4is_53m.bgcode

PET 0.40 mm 0.20 mm 0.88 hrs 15 g Prusa MK4



hour-rotor_04n_02mm_petg_mk4is_1h22m.bgcode

PET 0.40 mm 0.20 mm 1.36 hrs 20 g Prusa MK4



clock-base_04n_02mm_petg_mk4is_4h54m.bgcode

PET 0.40 mm 0.20 mm 4.89 hrs 94 g Prusa MK4

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