



# Smart Ikea Roller Blinds



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## Summary

Stepper motor mount and mechanism for converting a simple Ikea spring roller blind to a smart roller blind

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Simple mount for converting an IKEA roller blind to a smart blind.

BOM:

1x 608 bearing

1x 6mm, 2GT214 timing belt

1x 20 tooth 2GT 6mm pulley for stepper motor

4x 3x16mm SHCS bolts

1x Pancake Nema 17 stepper motor & driver (I used a TMC 2208)

1x ESP32

## Build Instructions:

- Loosely mount the motor to the base plate, with the belt around it's pulley
- Insert the 608 bearing into the printed pulley
- Install printed pulley on the base plate, while also installing the belt around the printed pulley
- Tension the belt by moving the motor down, and tightening it's mounting screws
- Remove the spring mechanism from the roller tube
- Remove the printed pulley and insert it into the blind's tube
- Replace the original tension mount (the mount with a small rectangular protrusion) with the printed base
- Mount the roller blinds using the original idler mount and the new printed mount, while also installing the belt around the printed pulley
- Connect the motor to the motor driver and the ESP32
- Install firmware of your choosing
  - I used esphome with homeassistant
  - the provided yaml file configures the esp32 properly as a shade for HA, and exposes 2 switches for calibration
    1. turn on the calibration switch
    2. turn on the calibration button → shade will start moving downwards
    3. once the shades arrives at the bottommost location, turn on the calibration button again → shade will start moving upwards
    4. once the shade arrives at the topmost location, turn on the calibration button again

Config file and setup heavily based on [Motor-On-A-Roller-Blind-for-ESPHOME](#)

## Model files



**shadeswallmount.3mf**



**smartshadespulley.3mf**

## Other files



config.txt

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