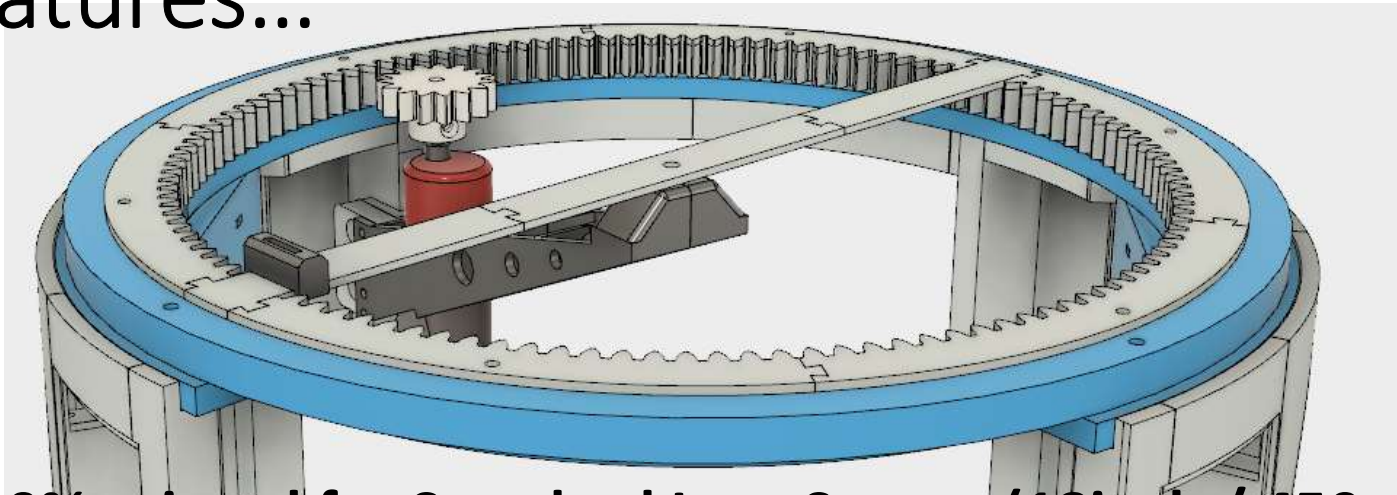


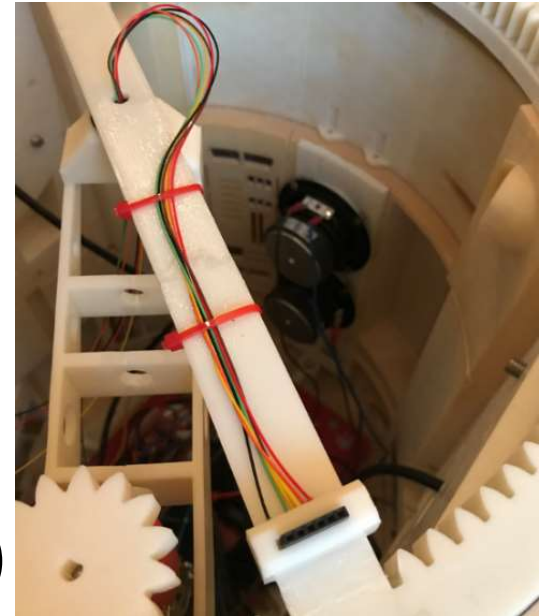
MrBaddeley
R2D2 version 2 dome gear
instructions
Version 0.1 (Draft)

<https://www.patreon.com/user?u=4294285>
for other parts and instructions

Features...

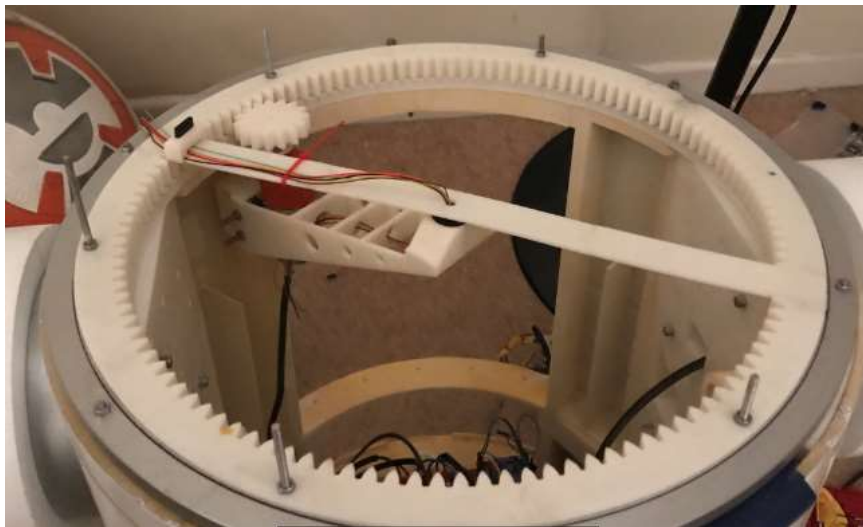


100% printed for Standard Lazy Susans (18inch / 450mm)

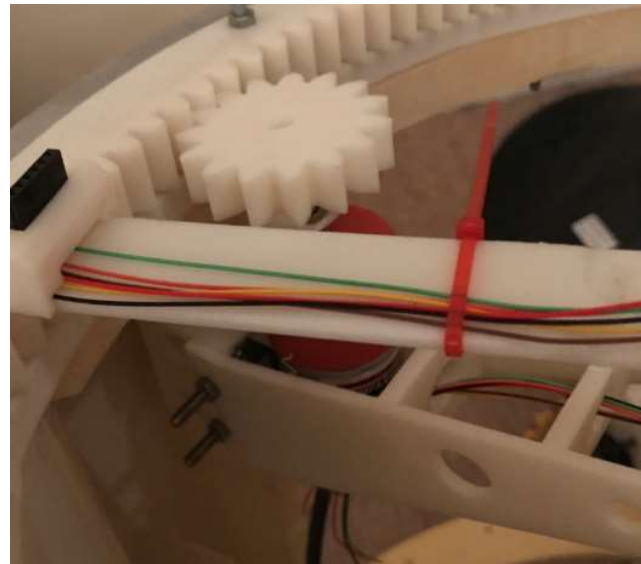


**Integrated
Slipring**

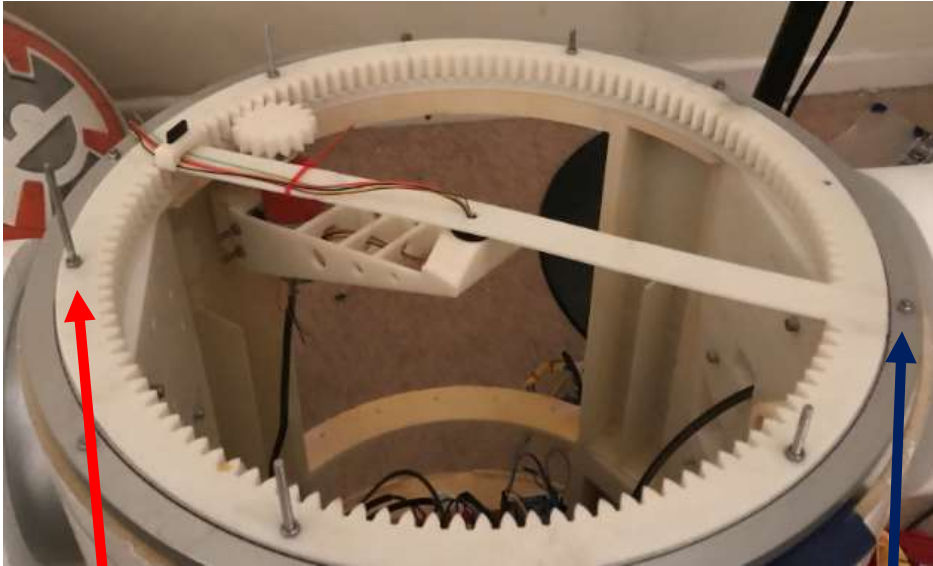
**Integrated
Motor Mount**



Printed drive gear



MrBaddeley R23D printed drive instructions



Bolts hold the lazy susan to the plastic ring

Bolts for the dome to slide on to.

Firstly the basics, all parts printed in ABS (other materials will work but ABS is great when acetone welded to create a solid piece, fairly critical for mechanical parts). I printed with 3 walls and around 25% infill for the parts.

Most parts should print without support (as designed) but please experiment if you do have some poor prints.

Fitting the Lazy susan to the top ring of the frame is something you'll have to work out. I basically drilled the holes straight through on both the inner and outer rings with a 4.5mm bit (I'm using 4mm bolts). Then I aligned to the top ring, drilled through the top plastic ring (away from the main body) and attached bolts through. Then bolted (using nuts as spacers to keep the lazy susan gap with the surface, there was plastic grommets with mine which I removed and replaced with nuts). So you end up with the plastic ring with 5 nuts pushed upwards, once the plastic ring is bolted in place, you put the lazy susan on the nuts and tightened up to hold in place. On the inner ring I also put bolts come up (the dome slides onto these), the gear slips onto the bolts and a nut holds in place. This give the 6mm spacer to ensure the dome fits OK.

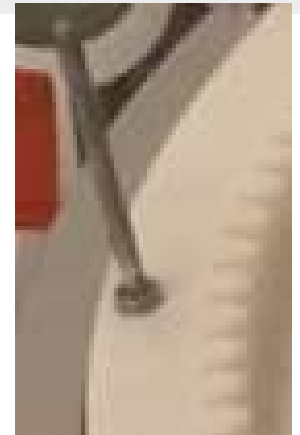
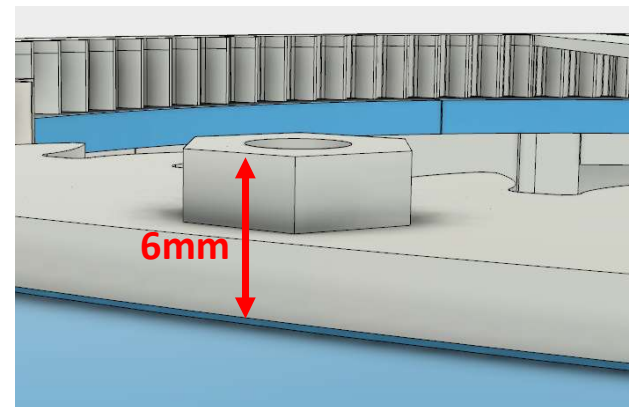
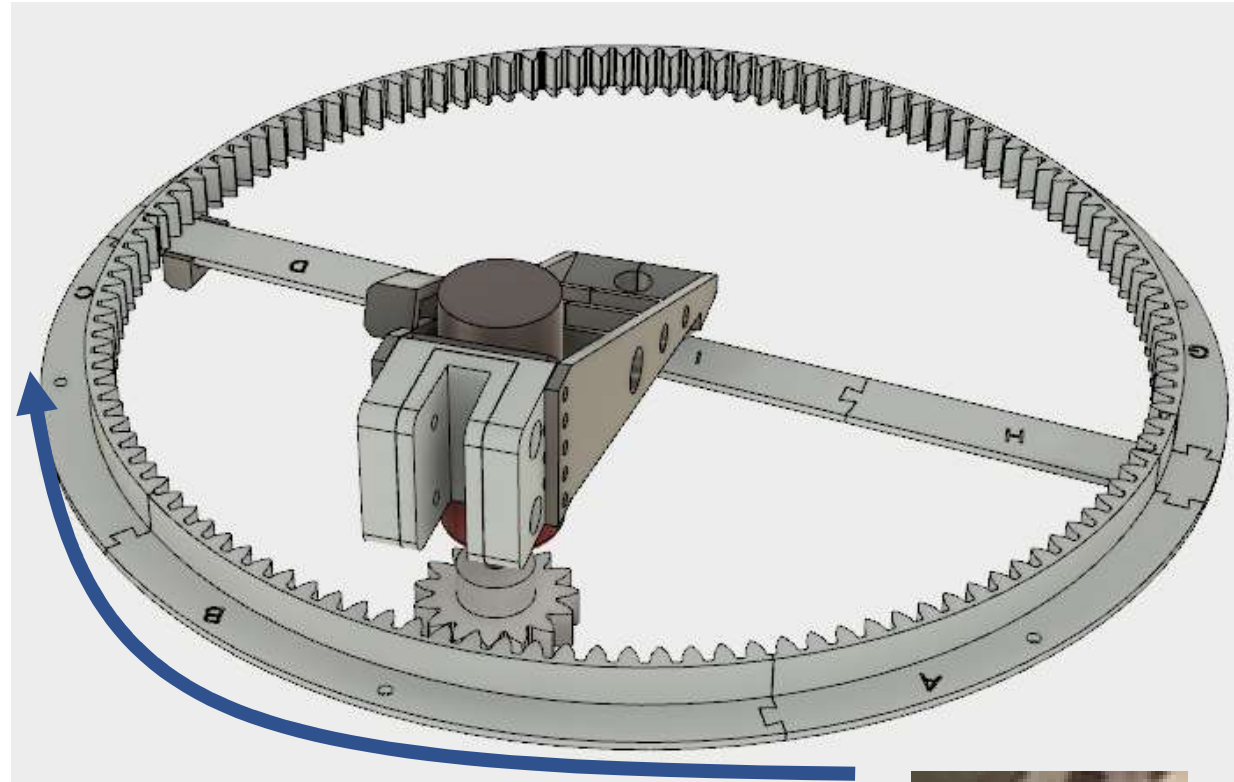
All this will make sense later.....

Drive Frame

Making the ring gear: Print out all the parts, these are labelled RingGearA through to RingGearI. These go together as shown, A,B,C, D etc. with I as the Centre piece.

I acetone welded these on a flat surface and clamped. Make sure these fit tightly and are fully dried before removing / fitting. Strength is improved with the lazy susan but the gear ring is weak until fully fitted. The holes in the gear ring should correspond with holes (or partial holes) in the susan. I had to drill mine out with a 4.5mm drill and countersunk slightly. There may be variation in Lazy Susans so you may have to experiment to fit correctly. If you struggle PM me and we can probably tweak the design slightly.

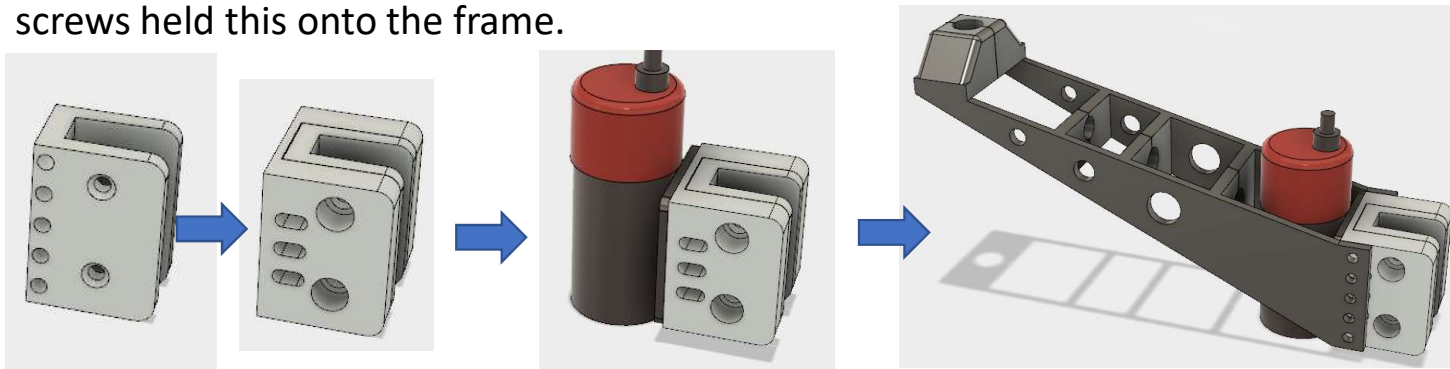
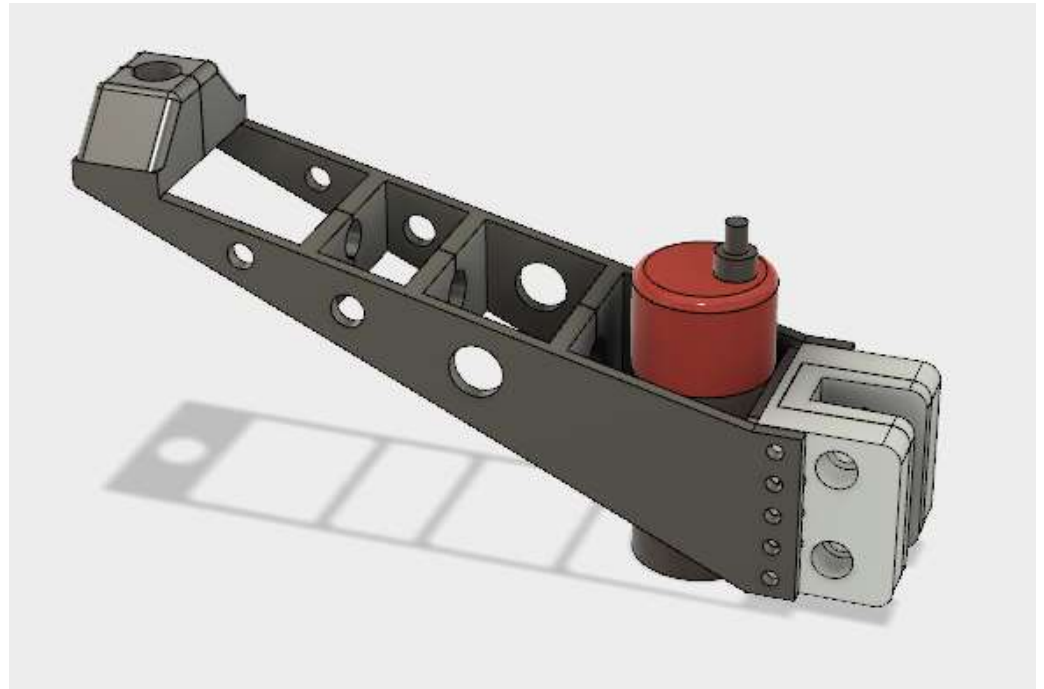
The gear ring should be fitted directed to the lazy susan and the nuts (M4 bolts and nuts) screwed onto to gear. Between the gear and the nuts this should give around 6mm clearance. The M4 Bolts should be fairly long (50mm +) as the dome rests on these.



Motor Mount

Making the Drive Motor Frame / Gear: The Dome Drive gear should be printed with higher infill (40%+). Once printed you'll see it has a captive nut. This uses a M4 Square nut and a small M4 Bolt (around 5-10mm I think) to really hold this tight to the flat part of the motor. I used Loctite glue also to keep the nut in place.

The mount consists of a couple of parts. The main mount point glues to the frame (acetone welding for me as I use ABS). Then the motor mount bolts to the frame as does the slipping frame. I did this so I could create other versions for different motors as needed. My motor had a plate mount so four screws held this onto the frame.



Finally print the slipping frame (two parts) welded together to make the overall frame. Note the holes are for cable management.

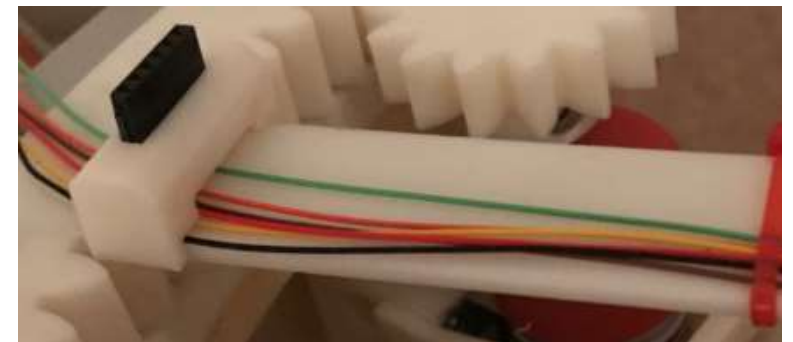
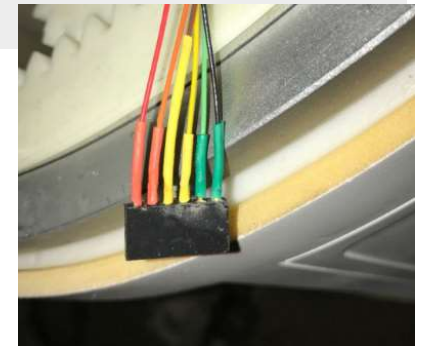
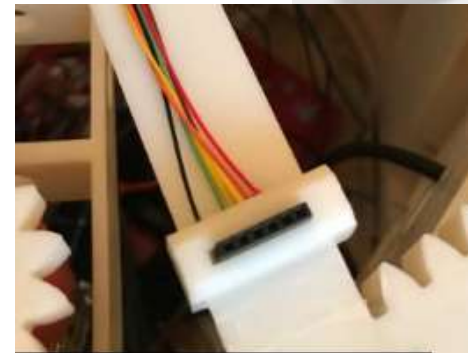
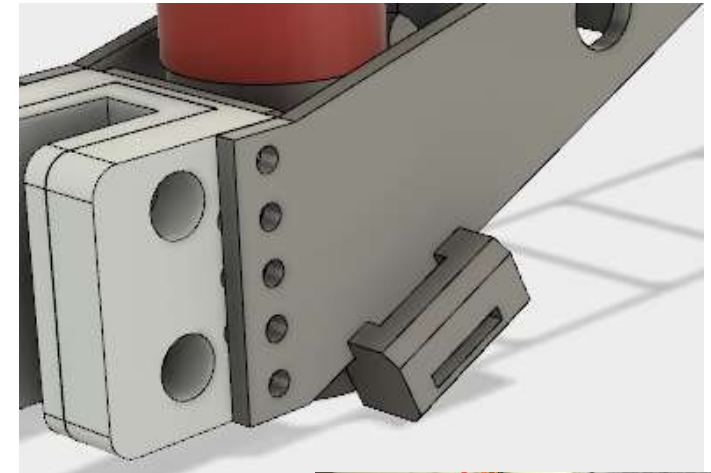
Assembling and cables

Putting it together: I used standard sockets (like the sockets on Arduinos) and soldered the cables from the slipring to create two connectors, one on the ring gear bar and the other on the slip ring bracket as shown in the photographs. I used heatshrink to tidy up the soldering.

I used a 6 wire slipring which fitted perfectly in the frame and fits into the centre hole in the middle.

I used a glue gun to fix the slipring in and the cable which comes through the ring gear centre.

Once soldered up, the connectors will fit into the Slipring BrackA and BrackB, mount where you think works. I've included pics showing where mine fit. Be careful the one on the ring gear isn't too close to the edge as the dome has to have clearance. The slipring will let you bring power and signals into the dome.



Assembling and cables

Finished!

That's pretty much it, the motor meshes with the gear, fixes to the frame (Only glue the first part of the frame to the main body. The rest should bolt together so you can change or upgrade the motor).

The motor is driven by the main electronics, the dome electronics should run to a male connector which fits into the socket as shown.





Supported and tested by Sean Lavigne, Jay Williams, Steven Elford, Robert Gusek, Rob Dinniwell, Joseph Masci, Gregory Welch, Sam D. Fenimore, LarryJ, tevens, Rick Davis, Brendan Faulkner, Nicolas Carré, Ben Langley, Mathieu Saint-marc, Chistopher Edwards, Mark Oram, Tim Parr, Jon Haag, John Gardener, Ryan Roehitch, Oiva Ranta, Wes Thierry, Robert Bean, Mitchell Young, Jake Danible, Simon Ruel, William Meyer and Brian.

