

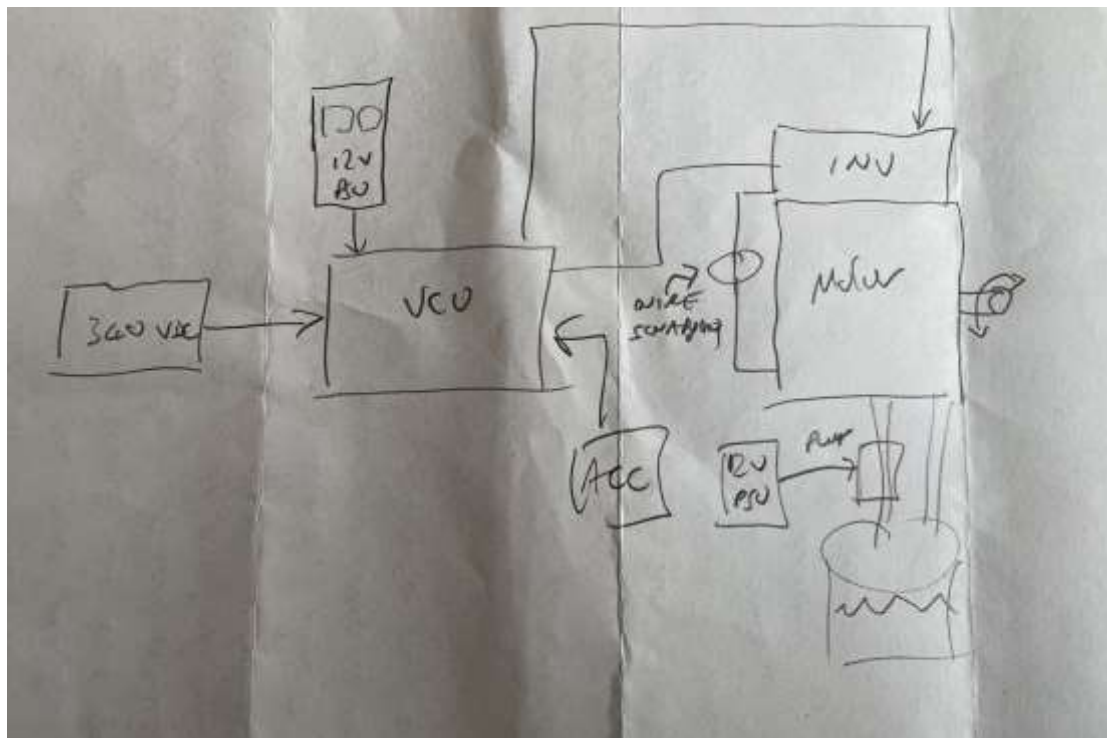
Project Report

Project	Sunny Jim
Report	Motor Spin Test
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1 Introduction

- We aim to get the motor to spin in a bench test

2 Setup



3 Initial Findings

With straight through connections, motor just cogs.

4 Experimentation and wire swapping

We experimented by swapping the polarity of both the exciting and sensing windings that provide motor direction feedback to the inverter.

Project Report

Config	Gear	Stimulus	Result	Shaft Rotation	RPM indication
Straight connections.	FWD	accel	Motor cogging		
Blu S3 / PUR S1 swapped	FWD		rotated for a while. then blew fuse in 340v PSU		-ve
Reduced max torque 100->50. Reduced max speed 10k->600	FWD	manual spin		clockwise	-ve
Restored 100/10k settings	FWD	manual spin		clockwise	-ve
Straight connections.	FWD	manual spin		clockwise	+ve
GRN S2 / YEL S4 swapped	FWD	manual spin		clockwise	-ve
Blu S3 / PUR S1 swapped and GRN S2 / YEL S4 swapped	FWD	manual spin		clockwise	+ve
	FWD	accel	Motor cogging		
BRN R1 / GRY R2 swapped	FWD	manual spin		clockwise	+ve
	FWD	accel	Motor cogging		
BRN R1 / GRY R2 swapped and BLU S3 / PUR S1 swapped	FWD	manual spin		clockwise	-ve
	FWD	accel	Motor runs continuously	anti-clockwise	+ve
	REV	accel	Motor runs continuously	clockwise	-ve

5 Conclusion

- We were able to get the motor to reliably drive in both forward and reverse directions by swapping both R1/R2 and S3/S1.
- Motor spin appears to be anticlockwise in FWD gear. Not sure if this will be an issue or not.
- In the test setup, it is easy to blow the 5A fuse in the 340v PSU – need to be careful not to give too much accel.
- On accel, the workshop lights flickered.