**Stepper motor speed calculation**

The setup uses Nema-17 stepper motor using A4988 stepper motor driver.

Its set to run at 1/8 step by raising high ms1 and ms2.

1. Main wheel: 2. Stepper wheel:

D = 191.05 mm D = 21.7mm

C = C =

= 600.2mm = 60cm = 68.17mm = 6.8cm

Wheel ratio: 60: 6.8 Approx. = 0.1: 1

1. **max speed: 20cm/s**

To attain this speed at the main wheel should rotate:

= rev/ Sec

Therefore: 1 rev = 3sec

To attain the same on the wheel attached to the motor we have to run it at:

Ratio 1: 0.1

Therefore: 3sec: 0.3sec

Nema-17 makes 200 steps per revolution.

If, 1 rev = 0.3 sec

Then: 1 step = = 0.0015 sec delay per step

In

1. **Min speed: 0.1cm/s**

To attain this speed at the main wheel should rotate:

= rev/ Sec

Therefore: 1 rev = 600sec

To attain the same on the wheel attached to the motor we have to run it at:

Ratio 1: 0.1

Therefore: 600sec: 60sec

Nema-17 makes 200 steps per revolution.

If, 1 rev = 60 sec

Then: 1 step = = 0.3 sec delay

To Use micro stepping simply divide the delay by the number of steps you desire to micro step.