EL-MT0056: Motor, Moons 4118S-08P-07RO

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1 Dimension 01

In order to measure the back lash of each motor we have to find the angle of the backlash. For a small movement we know the area of a portion of a circle is;

$$\frac{\theta}{360}\pi r^2 \tag{1}$$

Where theta is the angle between the two sides of the backlash. According to small angle approximations, we know that at some radius r, we know that θ will equal the arc length or in this the back lash we are trying to measure.

$$\frac{2\pi r}{360} = 1 \tag{2}$$

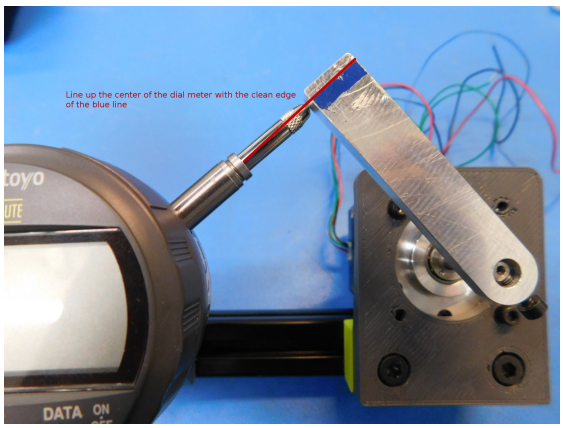

Figure 1: Placement of the dial gauge against the measuring arm.

Be finding this we find that the r we need is $57.29mm$. Which is marked out as a blue line on the jig and demonstrated in Figure 1.

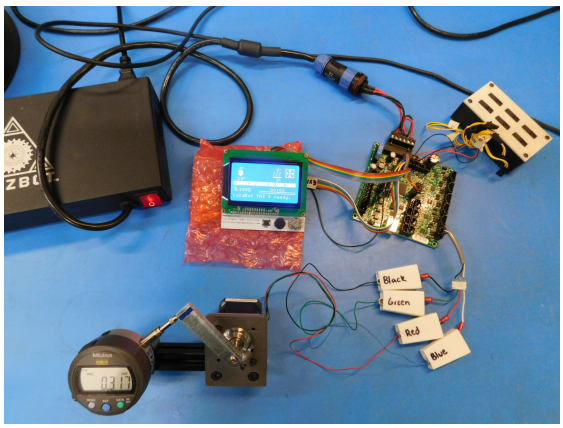

Figure 2: Set up for taking the measurement.

Following the setup featured in Figure [2], the motor will be connected to a RAMBO with a LCD display. The LCD display will be needed to engage the motors to help insure that it doesn't move when we are trying to take measurements. A set of 5 measurements will be taken for each motor, and after each we will be rotating the arm a full rotation and re-zeroing the dial gauge.