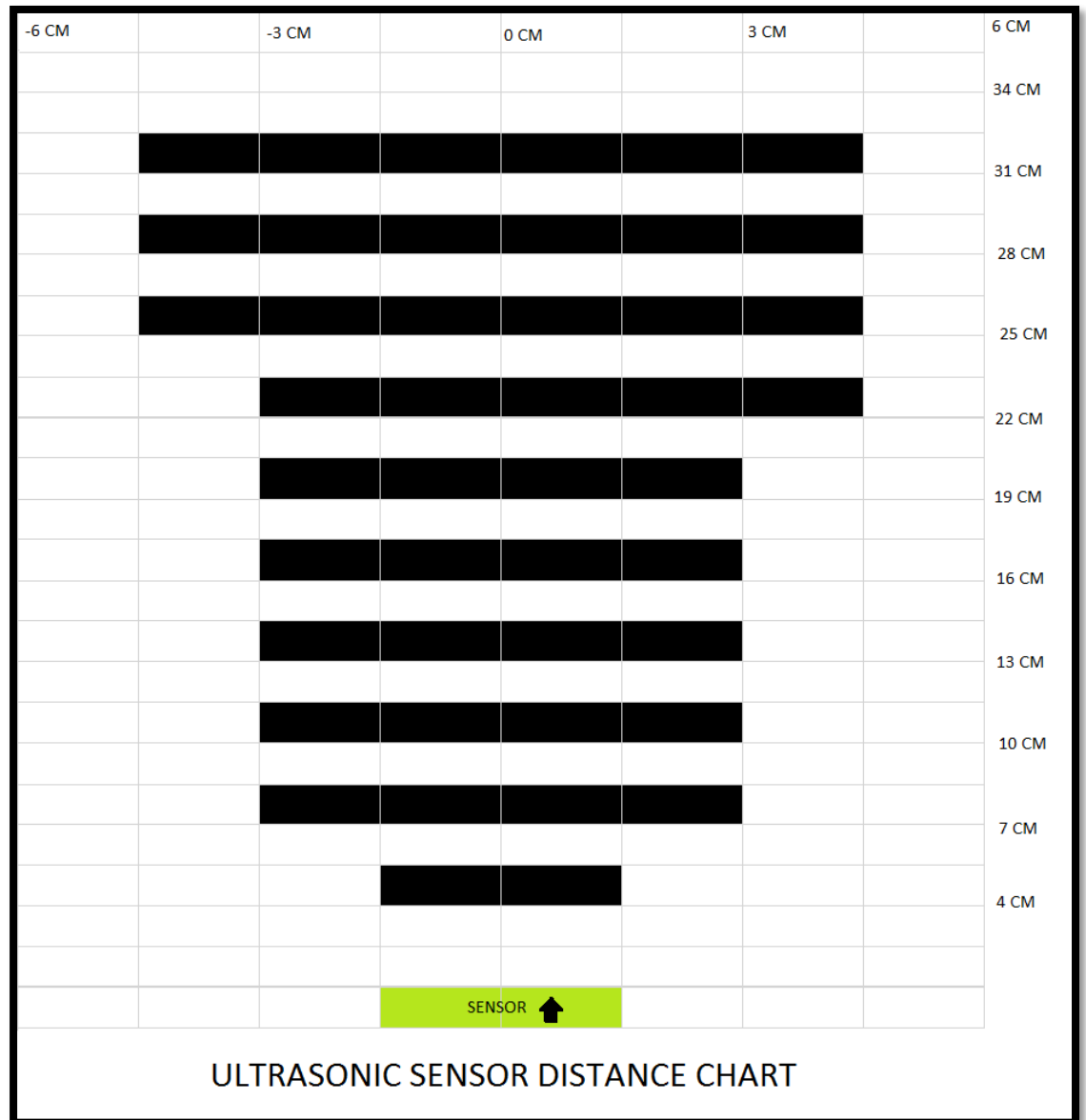


# QUALIFICATION DOCUMENT

## 1. Ultrasonic Sensor Qualification: -



**Figure 1: - Ultrasonic Sensor Chart.**

For qualification of the ultrasonic sensor, the sensor is fixed at a certain position and made to detect an object from different positions as shown in the figure above.

It is observed that as the object is kept further away the detection probability is better. Since the working range of the ultrasonic sensor for our project 4 cm – 40 cm, this sensor is qualified.

## 2. Motor Qualification and Unit Level Testing: -

MOTOR QUALIFICATION AND TESTING			
S. No.	Power	Large(rpms)	Medium(rpms)
1	1	0	30
2	2	6	30
3	25	42	78
4	50	84	126
5	75	126	174
6	100	168	216

**Figure 2: - Motor Qualification Chart**

The motor was qualified and tested on the following criteria: -

- The motor was made to run for 10 seconds at a certain input power.
- The LEGO Brick displayed the number of rotations made by the motor.
- RPM was calculated using the formula: - [Number of rotations/time] which is shown above in the chart.
- The data above showed that for a certain input power, motor was giving sufficient rpm which is required for this project.