**F.3 VEHICLE TEST RESULTS**

* **Test of Proximity Sensor**

Test procedure is proposed at the relevant section. Following results are obtained which are given in Table XXX.

*Table XXX: Mean and Standard Deviations of the Measurements w.r.t. different distances*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 3cm | 5cm | 7cm | 10cm | 15cm | 20cm | 30cm | 50cm | 100 cm | 150 cm |
| Mean of the Measurements  (cm) | 3.80 | 4.87 | 6.82 | 10.33 | 16.60 | 20.39 | 29.56 | 49.08 | 97.68 | 147.49 |
| Standard Deviation of the Measurements (cm) | 0.04 | 0.05 | 0.05 | 0.22 | 0.12 | 0.07 | 0.13 | 0.11 | 0.41 | 0.41 |

As it can be seen from Table XXX, sensor does not give reliable results below 5 cm and above 100 cm, yet, standard deviations are not too high. Also, as stated before in the Test Procedures section, high precision is expected for 5-15 cm range and sensor gives good result at 7 cm. Therefore, using ultrasonic sensor is good choice for distance measurement.

* **Test of Vehicle’s Movement**

When vehicle is driven at its top speed, it reaches to 1.5m in 4.54 seconds. It corresponds to 33 cm/sec where the requirement is 25 cm/sec. This requirement is satisfied easily.

Also, when vehicle is driven at its top speed, no slippage appears at the start. And no problem appears when it stops, it brakes smooth enough without going extra distance.

* **Test of Vehicle’s Weight Capacity**

Vehicle consists of 3 plexiglass (with 3 mm thickness) layers:

* First layer is reserved for motors and motor controller. (98 grams)
* Second layer is reserved for Arduino Mega and battery. (127 grams)
* Third layer is reserved for LEDs & photodiodes with their driving circuitries. (60 grams)

There is no twisting of the layers under that conditions which is good for proper operation.