

# Speedway Sensor Timer



## A. Open Speedway Assembly.

Step 1. If necessary, open your Speedway Assembly file.

## B. Extrude Sensor Holder.

Step 1. **Rewind Motion Study to 0 seconds.** To rewind, either **drag the Play Head** back to the beginning in the Motion Manager toolbar or **drag the Time Bar**, the gray vertical line back to 0 in the Timeline, **Fig. 1.**

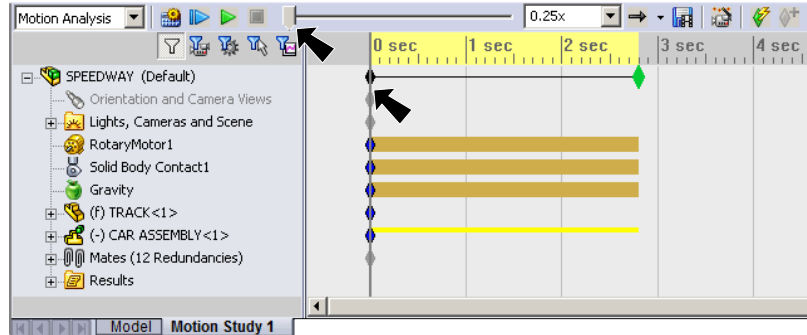


Fig. 1

Step 2. **Zoom in around Car Assembly and Start/Finish line, Fig. 2.** To **zoom**, hold down **Shift** key and drag with middle mouse button (wheel). To **pan**, hold down **Ctrl** key and drag with middle mouse button (wheel).

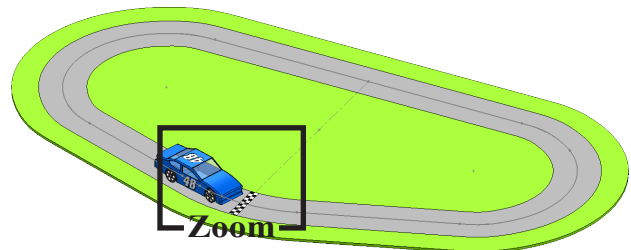


Fig. 2

Step 3. Click the **Track** and click **Edit Part** from the Content toolbar, **Fig. 3.**



Fig. 3

Step 4. Click the **top face of Track** and click **Sketch** on the Content menu, **Fig. 4.**

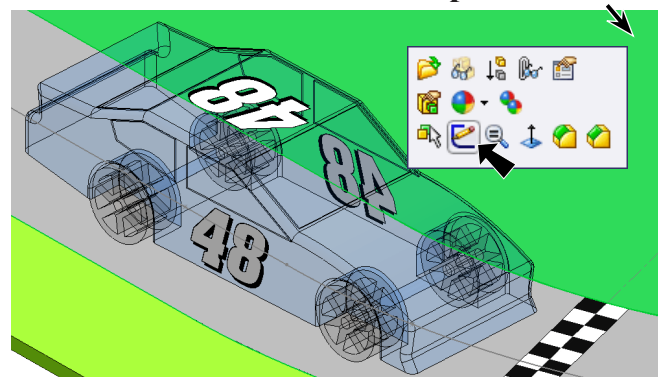
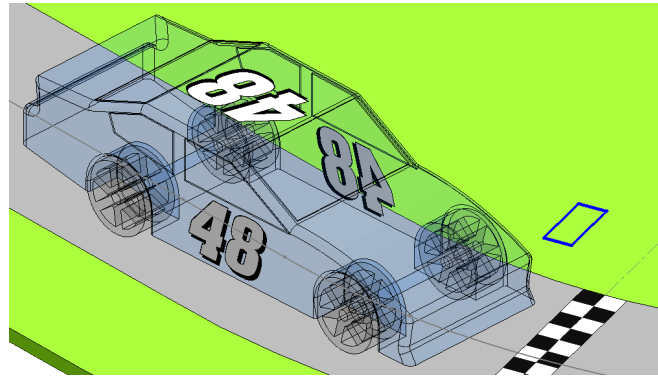



Fig. 4

Step 5. Click **Rectangle**  (S) on the Sketch toolbar.

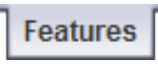
Step 6. Draw a rectangle on infield of Track, **Fig. 5**.

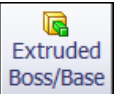


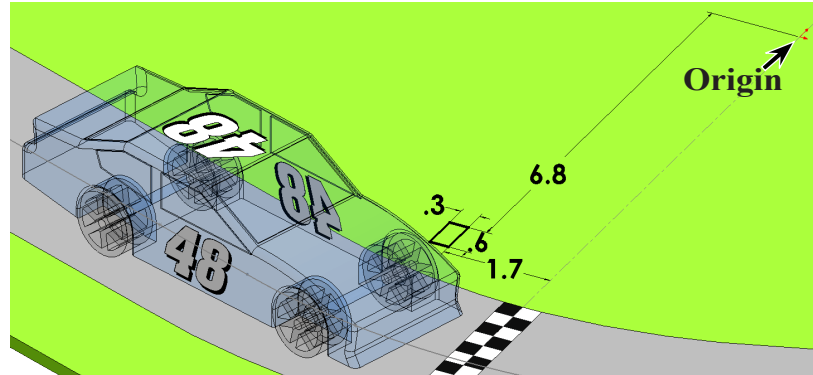
**Fig. 5**

Step 7. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 8. Add dimensions as shown in **Fig. 6**.

Step 9. Click **Features**  on the Command Manager toolbar.

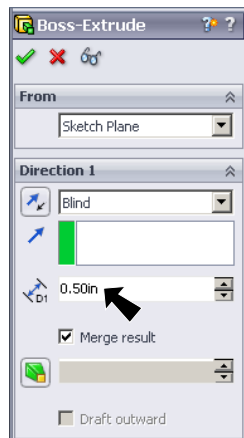
Step 10. Click **Extruded Boss/Base**  on the Features toolbar.



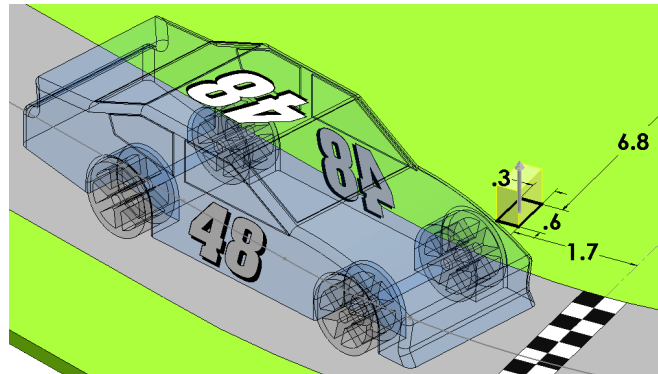
**Fig. 6**

Step 11. In the Property Manager set: under Direction 1, **Fig. 7**

**Depth**  D1 .5  
click OK 





**Fig. 7**



**Fig. 8**

## C. Appearance.

Step 1. Click the Extruded feature to select the feature, click **Appearances Callout**  on the Content menu and click **Boss-Extruded2** , Fig. 9.

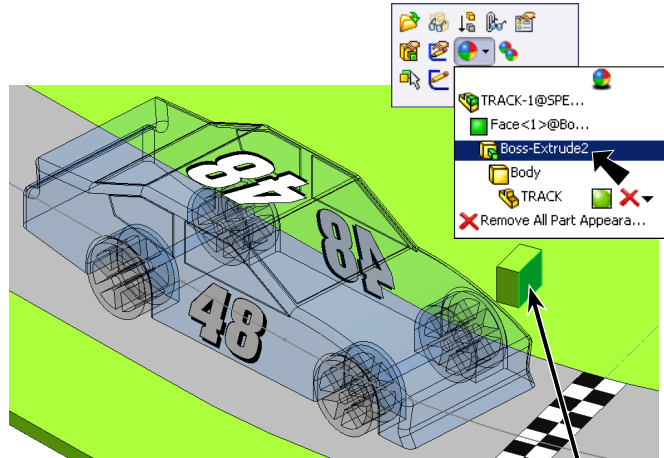




Fig. 9

Boss-Extruded2

Step 2. In the Appearances Property Manager; under Color click **Orange** swatch, Fig. 10 click OK .

Step 3. Click **Edit Component**  on the Sketch toolbar to turn off edit component and return to the assembly file.

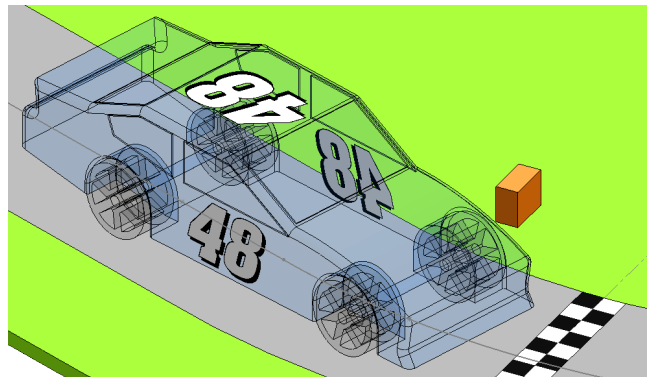


Fig. 11

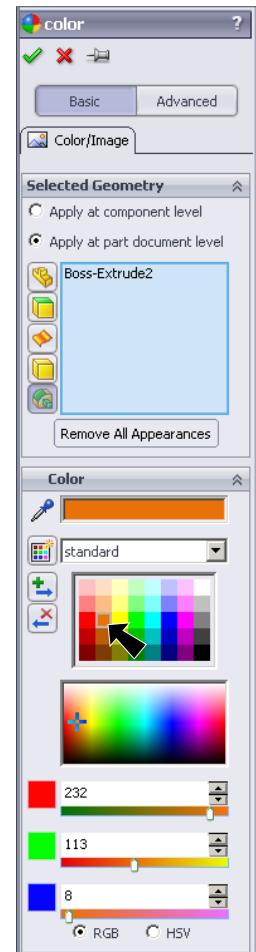



Fig. 10

## D. Add Sensor.

Step 1. **Right click Sensors**  in the Feature Manager and click **Add Sensor** from the Content toolbar, Fig. 12.

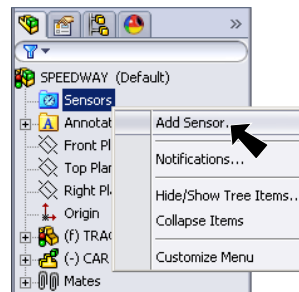


Fig. 12

Step 2. Click **Rebuild** in the Rebuild this document dialog box, Fig. 13.

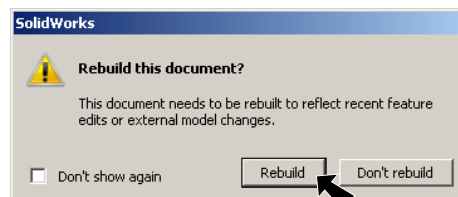


Fig. 13

Step 3. In the Sensor Property Manager set:  
 under Sensor Type, **Fig. 14**  
**Sensor type Proximity**

under Properties

**Proximity sensor location**  
 click **top right vertex of Boss-Extruded2**, **Fig. 15**

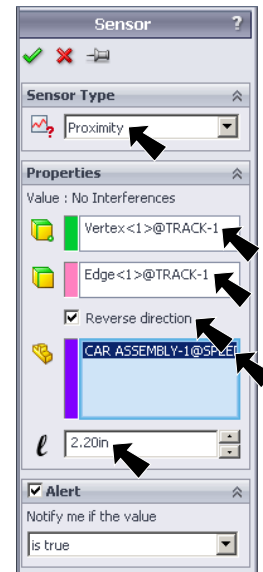
**Proximity sensor direction**  
 click **top edge of Boss-Extruded2**

check **Reverse direction**

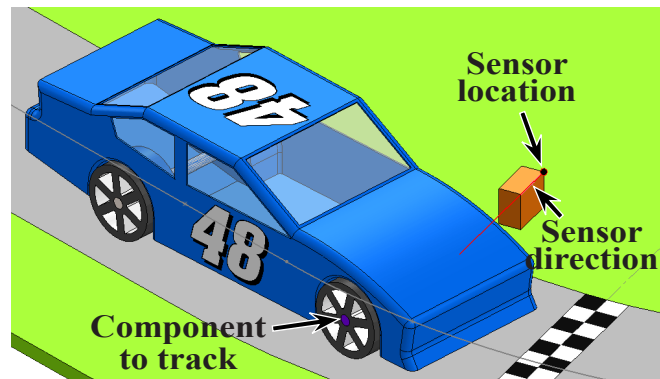
**Components to track**  
 click **front Axle**

**Proximity sensor range**  
**2.2**

click OK

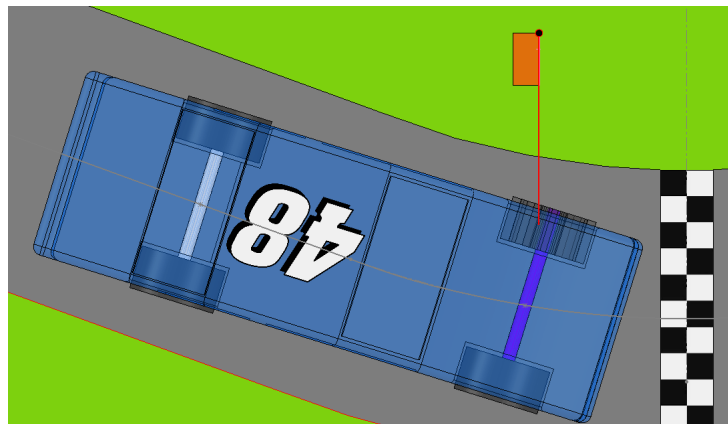


**Fig. 14**




**Fig. 15**

Step 4. In **Fig. 16** I switched to the Top View and changed transparency of the Car Body and Wheel to illustrate that Sensor has to be positioned behind the Axle.



**Fig. 16**

## E. Task Sensor.

Step 1. Click **Event-based Motion View**  on the far right end of Motion Manager toolbar, **Fig. 17.**

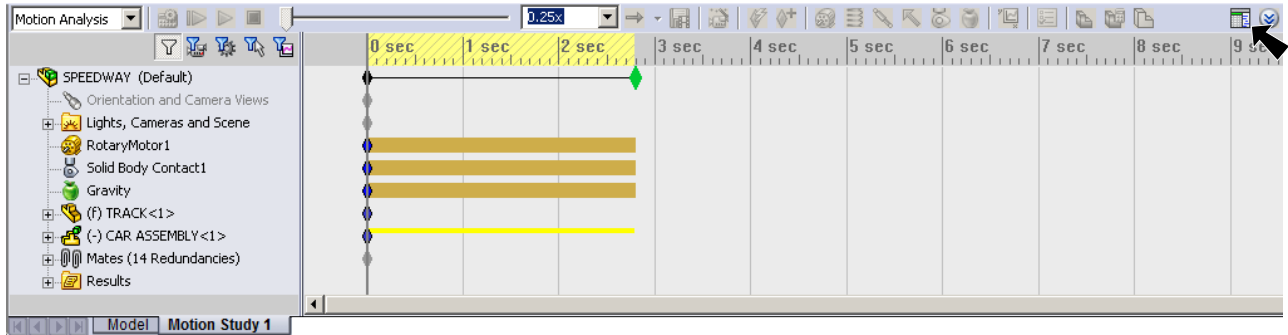


Fig. 17

Step 2. In the Event-based Motion Study, click **+ Click here to add**, **Fig. 18.**

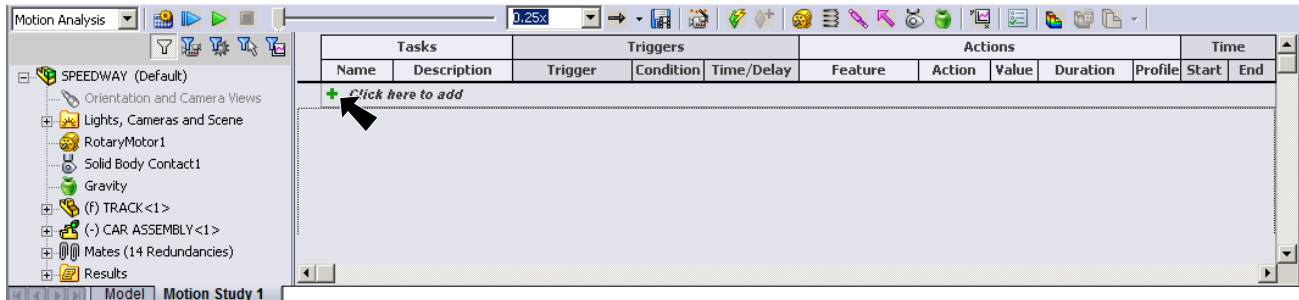


Fig. 18

Step 3. Under Trigger, click the **Select a trigger button** , **Fig. 19.**

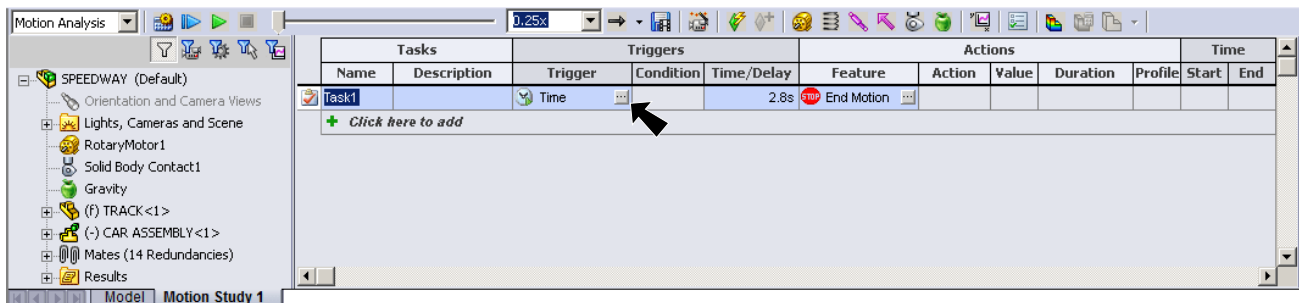


Fig. 19

Step 4. In the Trigger dialog box, expand **Sensor** and select the **zoom**. Click **OK**, **Fig. 20.**

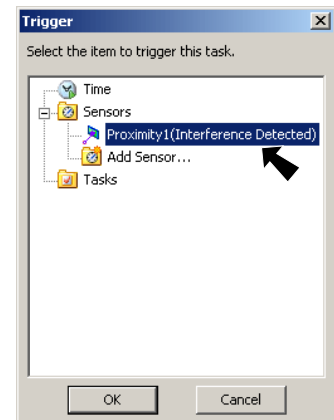


Fig. 20

Step 5. Click Zoom to Fit  (F) on the View toolbar.

Step 6. Click Calculate  and Play from Start  on the Motion Manager toolbar, Fig. 21. The Motion Study will stop when Car "trips" the sensor.

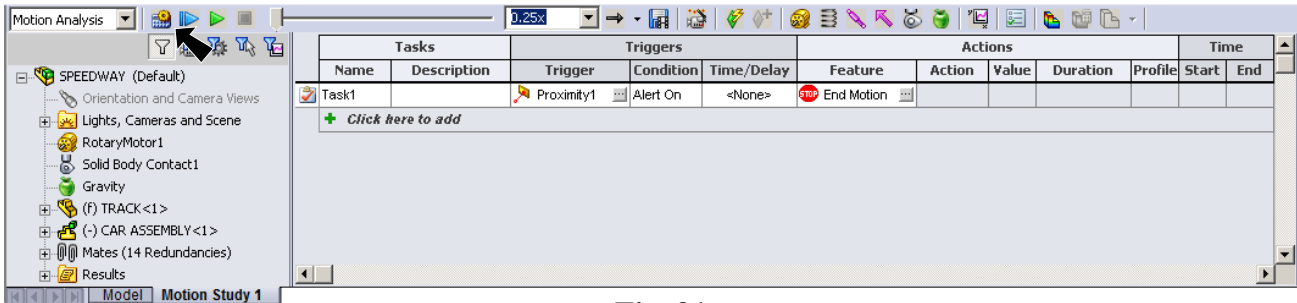


Fig. 21

Step 7. Under Time, what is your time, Fig. 22?

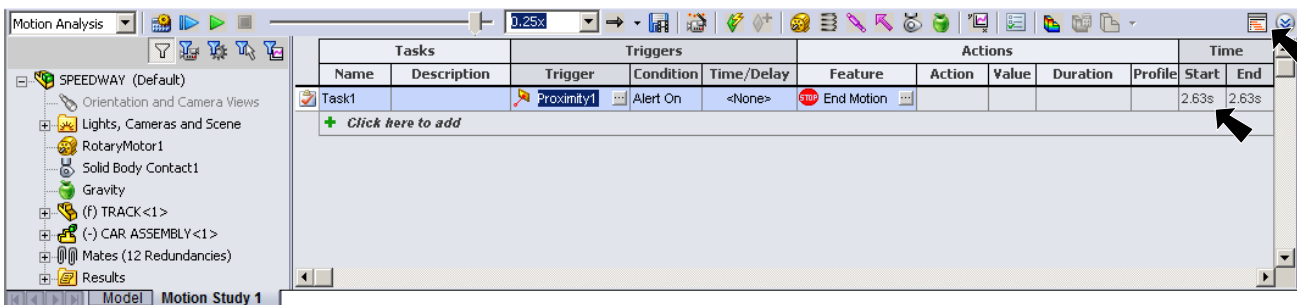


Fig. 22

Step 8. Click Timeline View  on the far right end of Motion Manager toolbar to switch to Timeline View, Fig. 22.

Step 9. Save. Use Ctrl-S.

Step 10. Out best time was 2.1, Fig. 23.

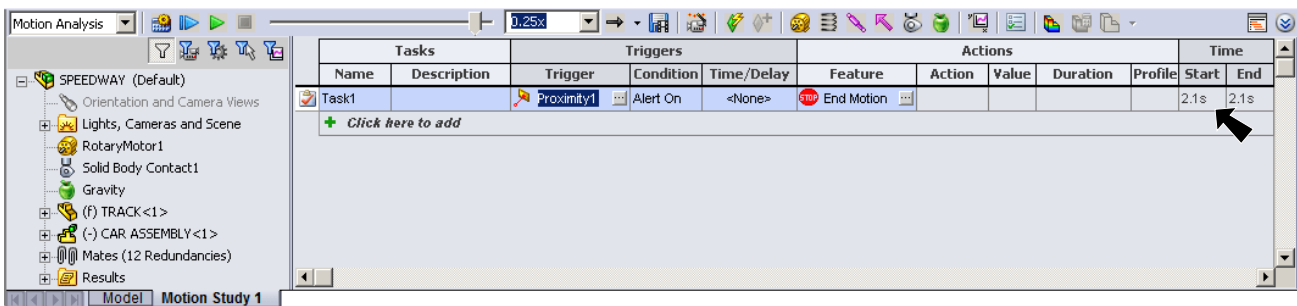


Fig. 23