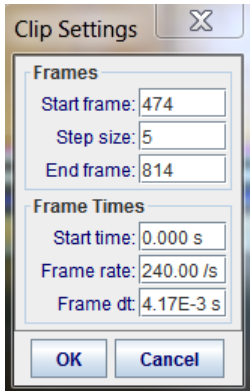


This assignment serves to introduce you to the Tracker Motion Analysis software and to review concepts of 1-Dimensional motion.

Procedure

1. Important! From the memory stick copy the file: *cart_collision_mass_difference.mov* to your U drive.
2. Open the Tracker program from the USB drive.
3. Load the file you just copied and set up all of the clip settings as below-left.



4. Create a calibration stick and stretch it from one black hole to the other and make its length 0.20 (that will give the position measurements the unit of meters to two significant digits).



5. Insert a coordinate system and place the origin near the left edge of the video.
6. Track the red car as it travels from the left side, collides and returns to the left.
7. Use a line of best fit of your data to figure out how fast the car was going before and after the collision with the blue car.
8. Repeat the entire process three more times (if in a group of two each person could track the car twice) and place your four velocity values into the Excel file for an error analysis. Take the accepted values as follows: Moving to the right: 0.21 m/s; to the left: -0.34 m/s.
9. Open a WORD document to answer questions and insert images and be sure all names are in the document. Save your results with your group's names in the file name and email me the file.

Analysis

1. Without calculation, what are two indications from the graphical data that the red car moved fastest after the collision with the blue car?
2. Insert two copies of the graphical analysis – one showing the analysis of the car as it moves right and the other as it moves left.
3. Copy the analysis from Excel.
4. Were your results in good agreement with the accepted value?
5. Write three experimental errors of this investigation.