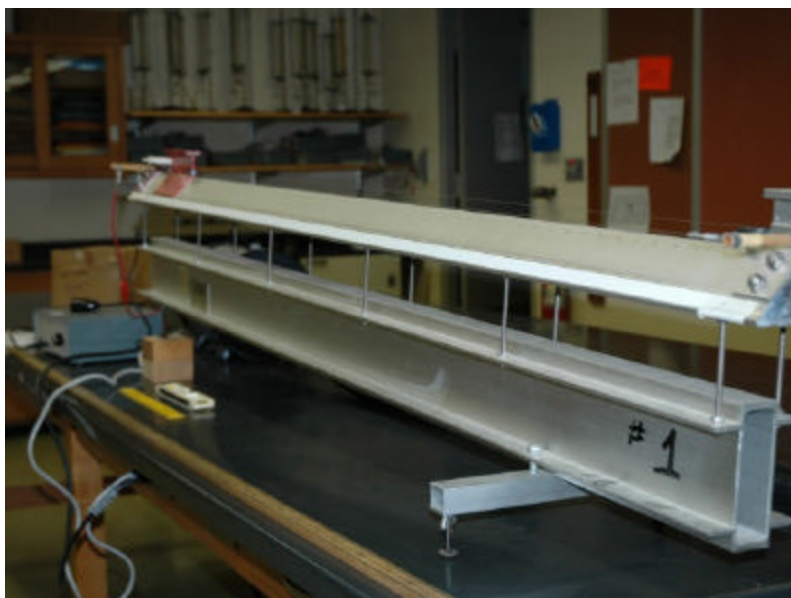


## One Dimensional Kinematics

This is the overall view as seen from the downhill side. The aluminum cart can be seen at the far end of the air track.

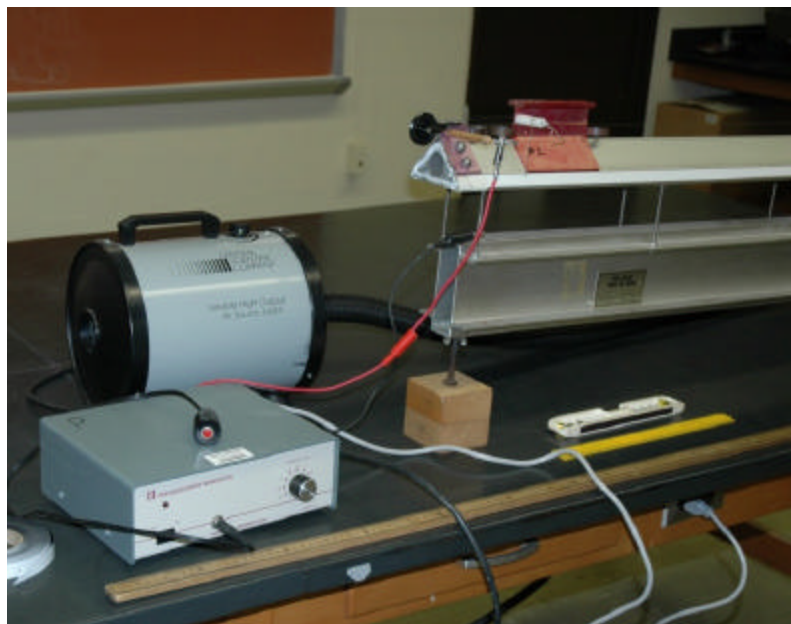
Be careful when you place the white strip of paper along the track that it doesn't interfere with the motion of the cart.

For this setup the air hose is connected to the track at the lower end.



This is the overall view as seen from the uphill side. Be sure to write down all of your equipment ID numbers (including the wooden blocks), in case you forget to make a necessary measurement!

Don't slide the cart along the track unless the air is blowing, to keep from permanently scratching it. Also, only use a cart number that matches your track. In these photos, both the cart and track are #1.



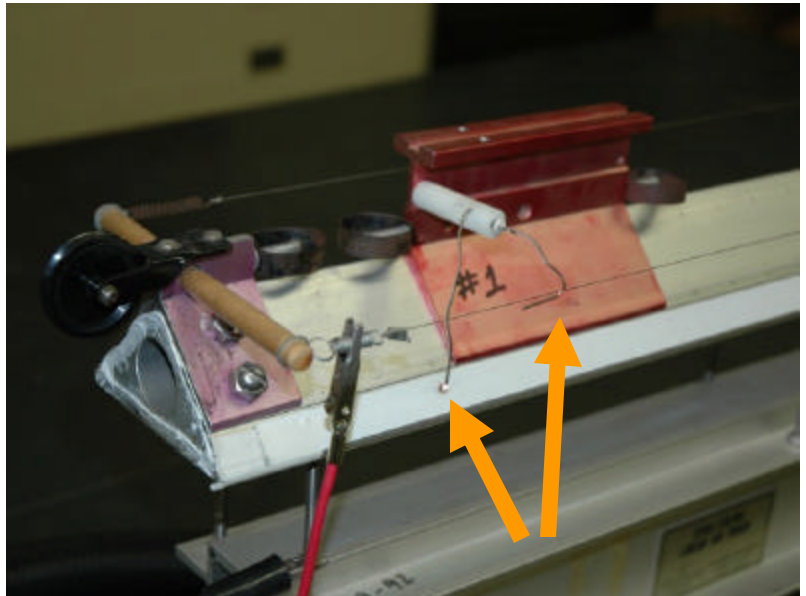
Here you can see the necessary electrical connections. The black lead should connect to the track structure, and the red should connect to one of the wires that runs along the track.

Each cart should have a bent wire attached to it. One end of the wire should be near to but not touching the electrical wire. The tip of the bent wire should be very near the center of the white spark-sensitive paper that runs along the track.



While the air is on, slide the cart along the track to make sure that the wires never bump each other.

In this picture, the power supply has been turned on. Current runs through the red wire, down the guide wire, and then jumps through the air to the bent wire. The current travels through this wire, then jumps again through the white paper strip and into the track itself, then returns to the power supply through the black wire.



In this picture, you can see the two bright orange sparks where the current jumps. This spark may also look violet. The second spark should leave a black mark on the paper strip. This current is pretty dangerous, so stay away from the track when you are running the power!

The spark generator should be set to 60 Hz (or “line” on some models), and should be turned off when not in use. Don’t trust the red trigger to prevent it from operating!



After your run, you should have data that looks more or less like this. Each dot was made at equal time intervals, so the dots show the position of the cart as a function of time. From this information, we can also approximate the velocity and acceleration of the car at each time.

