Physics 101

Lab 8: Conservation of Momentum

Myat Thit Ko Ko

Date: 04/02/2026

Contents

Purpose

The purpose of this eighth lab is to obtain practical skills in performing an experiment to find out the change in momentum in both elastic and inelastic collisions. The goal is to attest the law of conservation of momentum by proving it empirically that our found momentum values are equivalent.

Members

This lab group consisted of four members who worked together as a team to make the procedure accurate and fair for everyone.

1. Myat Thit Ko Ko (author)
2. Sarah Ruelas
3. Inigo Mikael Dela Vega
4. Hector Torres

Procedure

The lab consisted of the following steps and procedures.

- Measuring masses of both objects.
- Measuring the length of the paper to be attached on the object(s).

Part I: Completely inelastic collision

- Calculating the velocity by using a motion and time sensor.

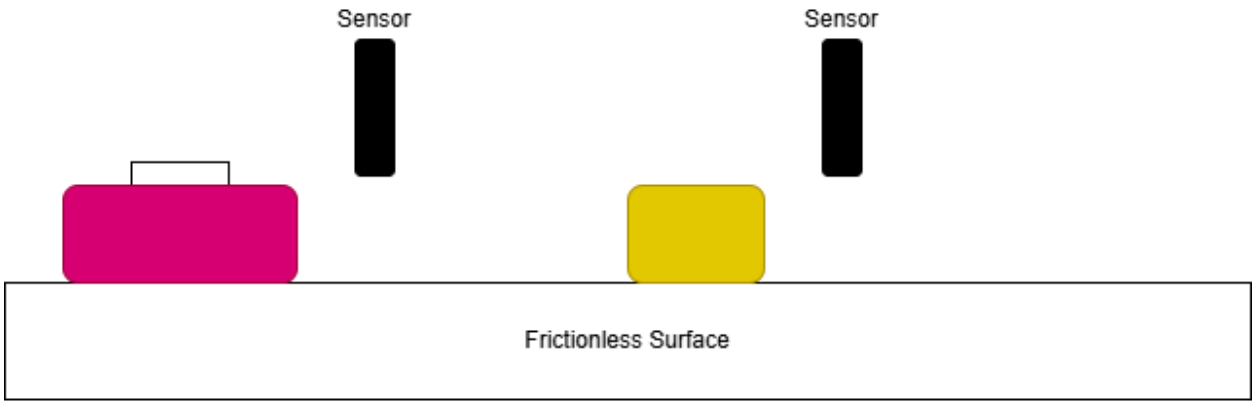
Part II: Somewhat elastic collision

- Calculating the velocity by using a motion and time sensor.

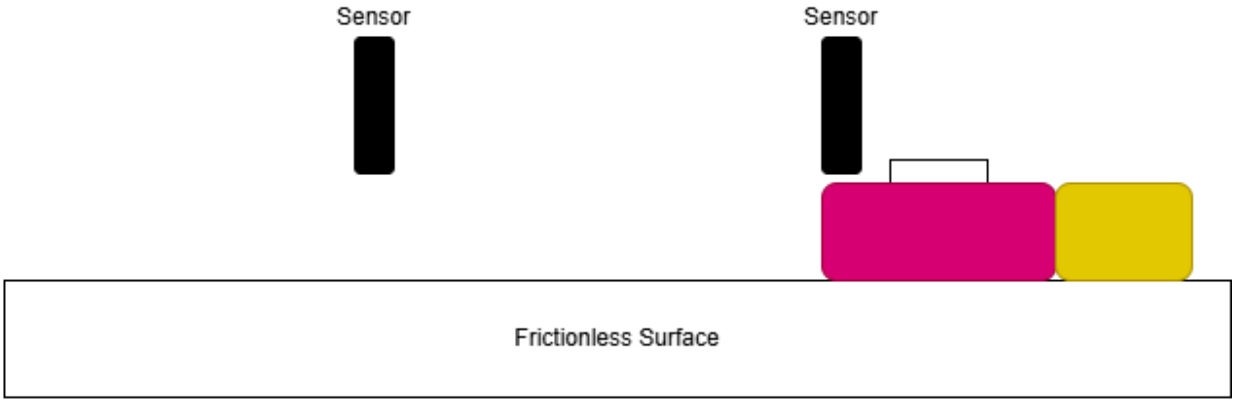
Every calculated value in this lab is rounded to be accurate to 4 significant figures.

Data & Analysis

Part I : Completely Inelastic Collision



Before Collision



After Collision

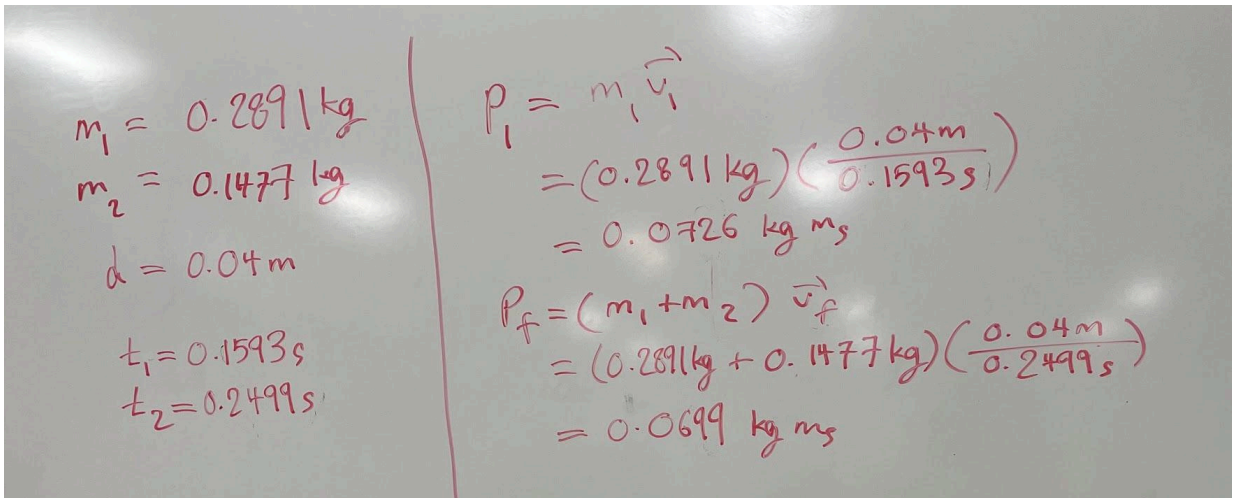
Part I : Completely Inelastic Collision

Mass of glider1 = 0.2891 kg
Mass of glider2 = 0.1477 kg

The following table is a summary of our findings based on the data provided by sensor

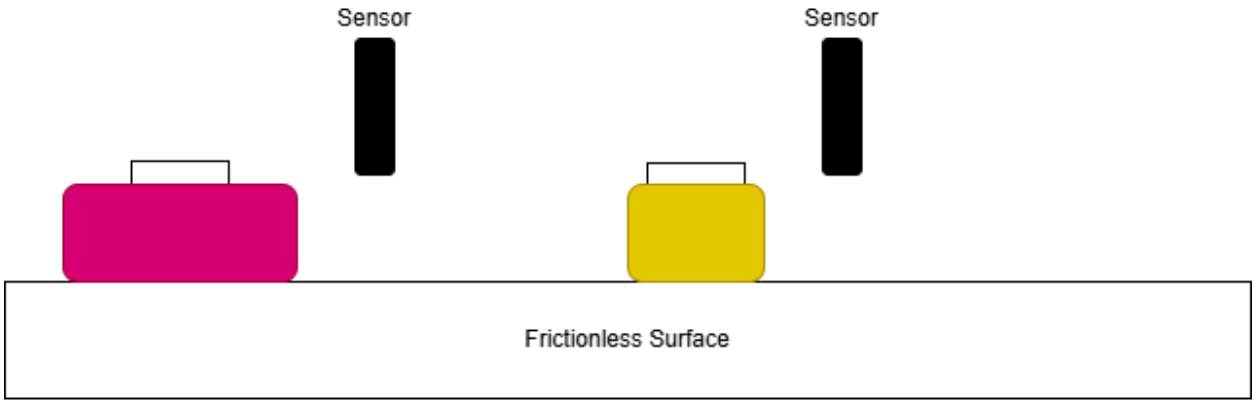
Index	Initial Time (s)	Final Time (s)
Glider1	0.1593	0.2499
Glider2	N/A	N/A

Length of paper = 0.04 m

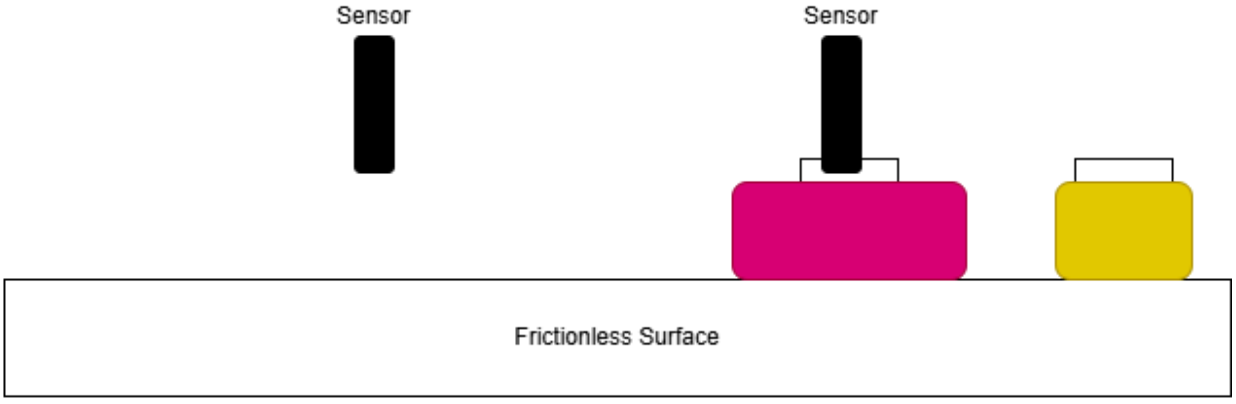


% error =	$\frac{\lvert 0.0726 - 0.0699 \rvert}{(0.0726+0.0699)/2}$	x 100 % =	3.789%

Part II : Somewhat Elastic Collision



Before Collision



After Collision

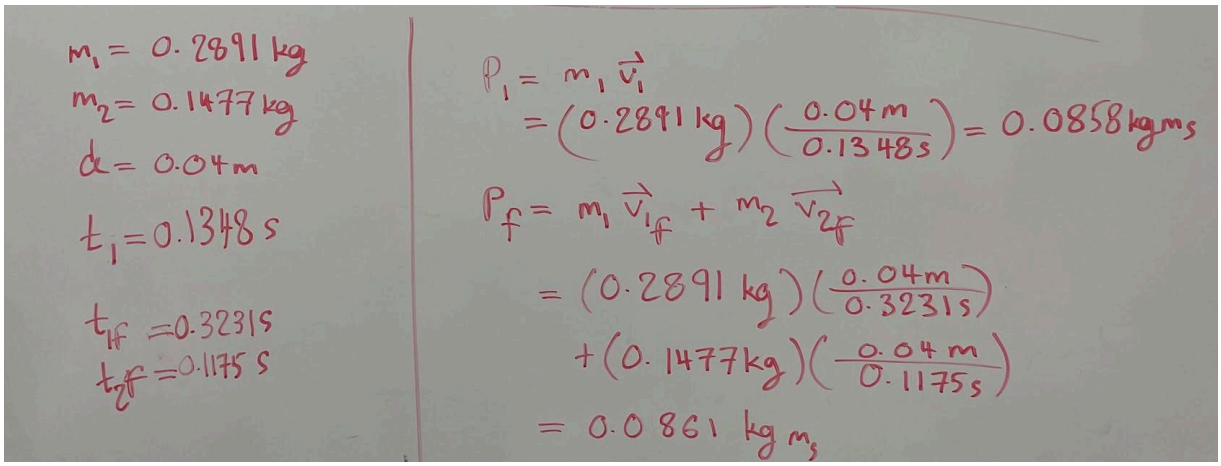
Part II : Somewhat Elastic Collision

Mass of glider1 = 0.2891 kg
Mass of glider2 = 0.1477 kg

The following table is a summary of our findings based on the data provided by sensor

Index	Initial Time (s)	Final Time (s)
Glider1	0.1348	0.3231
Glider2	0	0.1175

Length of paper = 0.04 m



% error =	$\frac{\lvert 0.0858 - 0.0861 \rvert}{(0.0858+0.0861)/2}$	x 100 % =	0.3490%

Analysis

The error percentage in part II was a record low for our group. This was likely due to the simplicity of the lab aided by accurate sensors in place.

We had more attempts at part I where our objects were required to stick together after collision. It is possible that we needed a bigger mass on the left to increase the chances of this.

Conclusion

Our error percentages were found to be less than 10%. Therefore, it is deemed satisfactory. This lab was rather simple and seeing the law of conservation of momentum in action was empirically satisfying.

Summary

Experiment Title: Conservation of Momentum

Student's name: Myat Thit Ko Ko

Date: 04/02/2026

Purpose: To find out the values of momentum before and after collisions.

Procedure: Measuring data, recording time lapses, calculating values.

Data: 2x2 = 4 points total

Analysis: Error percentages were 3.789%, and 0.3490% respectively.

Conclusion: Satisfactory