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High speed video analysis study of elastic and inelastic collisions[1]

ANDREW BAKER, JACOB BECKEY, VASUDEVA ARAVIND, Clarion University, CLARION TEAM — We study inelastic and elastic collisions with a high frame rate video capture to study the process of deformation and other energy transformations during collision. Snapshots are acquired before and after collision and the dynamics of collision are analyzed using Tracker software. By observing the rapid changes (over few milliseconds) and slower changes (over few seconds) in momentum and kinetic energy during the process of collision, we study the loss of momentum and kinetic energy over time. Using this data, it could be possible to design experiments that reduce error involved in these experiments, helping students build better and more robust models to understand the physical world.

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