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USING CELLULAR PHONE VIDEO CAPTURE SOFTWARE TO DETERMINE 2-D KINEMATICS AND DRAG FORCE ON PROJECTILES RYAN DORLAND, St. Joseph's College — Student use of cellular phones is ubiquitous at any college campus. Several companies have taken advantage of this opportunity to utilize the graphics and computing power available to students. In a series of laboratory experiments in an introductory college physics course, we made use of Vernier Video PhysicsTM for iPadTM and iPhoneTM to determine the 2-D kinematics equations of a water balloon launch. Since $Re > 1000$, students were able to determine the drag force on the balloon and verify a quadratic relationship with velocity, and answer many questions related to drag. Using video-capture software allows for inclusion and treatment of topics such as air resistance that are usually ignored or minimized at an introductory level, and provides students with 'their own data on their own phone' to extend understanding of ideal and real projectiles beyond textbook examples.

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