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Motion detectors offer students an opportunity to think about and study calculus concepts through kinesthetic movement. Previously, the benefits of using motion detectors were often outweighed by an expensive interface that could be difficult to use. Advances in technology have made the use of these tools both easier and more beneficial—the sonic motion detector connects via USB directly to the computer and interfaces automatically with graphical analysis software. Students use the motion detectors to reinforce notions of function, position versus time, slope and velocity. Through these activities, students develop a strong conceptual understanding of the relationship between a function and its first & second derivatives. We will demonstrate an activity that focuses on students creating position versus time graphs from a given velocity versus time graph. (Received September 27, 2005)