Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Studying chaotic pendulum using a microcontroller CAHIT ERKAL, Univ of Tennessee, Martin — We propose a more efficient way of studying the complex motion of a double-pendulum by utilizing a microcontroller. This methodology, unlike many chaotic pendulums built for studying nonlinear dynamical properties of oscillating systems, offers a direct and precise control of the motion of the pendulum. A microcontroller and a motor drive the pendulums with any driving force that the user can chose. The pendulum consists of two light wooden bars connected with a very low friction bearing and it is driven directly by a low-power dc motor. What makes this pendulum appealing is its precision and simplicity. We also tested a video-based algorithm (Tracker, open source physics, https://physlets.org/tracker/) and Mathematica to collect the position data for analyses.

Cahit Erkal
Univ of Tennessee, Martin

Date submitted: 14 Jan 2018 Electronic form version 1.4