College of Engineering | Recreating Antique Toys with Modern Technology

Researchers at The University of Texas San Antonio have re-engineered a century old walking toy with the help of 3D printing

The Rowdy Walker may look like a simple device, but developing it was anything but. UTSA graduate student Christian Trevino started on the project, which is based on a toy from the 1900s, in 2015 and has been perfecting the 3D printed design over the last 12 months.

“Traditionally, this kind of toy is made up of three wooden pieces – a body with a fixed leg, a moving leg, and a hinge joint that attaches the two,” said Trevino, who recently started her graduate students in mechanical engineering at UTSA. “We have re-engineered the toy so that it can be 3D printed as a single integrated assembly that includes the pin joint.”

Trevino explained that after the toy is printed she had to manually remove the extra material that held the leg in place so the toy could “walk” down an incline.

“Just like a windup toy uses potential energy stored in a spring, the walking toy uses potential energy as it descends downhill,” Pranav Bhounsule, the mechanical engineering faculty member who mentored Trevino. “However, unlike a windup toy that has an intricate mechanism, our Walking Rowdy relies on

its mass distribution, inertia, and leg geometry to amble downhill.”

Trevino said that she wanted to make a toy that was based on the UTSA mascot, Rowdy, because she is proud Roadrunner and knew that the toy would be a hit among her fellow UTSA students.

“This wouldn’t have been possible with out 3D printing because that allowed me to tune the geometry and mass distribution without having to compromise the likeness of the logo.” said Trevino, who eventually hopes to mass produce the toy and sell it as a souvenir.

To see video of the Rowdy Walker, visit: https://youtu.be/wJ3W3MomWI4

For more information on Pranav Bhounsule's lab, visit: engineering.utsa.edu/~pab