Skateboard Stoppers: A Novel, Safer Way to Learn How to Skateboard

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Learning to skateboard is challenging and often leads to injury. Unlike bikes, skateboards do not have a universal training aid for beginners. This project aimed to create a device similar to training wheels for skateboards. Since skateboard wheels come in different sizes and shapes, the prototype was designed around the two standard parts: the bearing size and axle nut. Six key criteria were established to define success: adjustable speed reduction, improved balance, compatibility with all skateboard types, no damage to the board or wheels, ease of attachment and removal, and a compact design. Concept sketches were turned into 3D CAD models and 3D printed, and multiple iterations of the design were refined. The prototype was tested on a smooth ramp to see how it would affect friction forces and bring the skateboard to a full stop. To test balance, yoga poses like the standing forward bend, dancer pose, and tree pose were done. No wobbling meant it was more stable. The device was also timed to see how fast it was to use, under 60 seconds to attach and adjust. The Skateboard Stopper final prototype was tested using 4 different skateboards and 5 different skateboard wheels with a focus on providing friction force on the skateboard to alter the speeds. Results confirmed that the prototype effectively reduced speed, stopped the skateboard, and enhanced balance, providing a safer learning experience. The Skateboard Stopper can offer beginners greater confidence and control, making the learning process easier, safer, and less intimidating.

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