# Glide: A Portable Braille Converter Using Mechanical Miniature Pistons

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**Abstract**

Reading printed text remains a significant challenge for visually impaired individuals, especially in everyday environments. In this work, I am proposing a compact handheld assistive device named 'Glide'. Roughly the size of an eraser, Glide allows users to manually move it over printed material while it captures text using a small camera. The captured image is processed through OCR using OpenCV, and the recognized characters are instantly converted into Braille patterns. These patterns are physically rendered using an array of mechanical pistons on the device's surface, with each piston representing a single Braille dot. Controlled by a microcontroller, this system offers real-time, refreshable Braille feedback, enabling users to read printed text on the go without needing bulky or expensive equipment.