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Development of Seven Segment Display Recognition using TensorFlow on Raspberry Pi

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LED Seven Segment displays have become embedded in our daily lives, beginning with small devices like wristwatches and progressing to massive mechanical equipment used in industry. Every day, the application base for LED seven-segment displays expands in commercial and industrial applications. To facilitate industrial automation, the previous process's displayed information must be recognized as the input to the subsequent process, even more so when direct communication between processes is not visible. The purpose of this paper is to develop a recognition system for seven segment displays on the Raspberry Pi. The design of hardware, software, and algorithms will be discussed. SSD-MobileNet will be used for subsequent experiments, out of the two architectures evaluated, Tiny YOLO and SSD-MobileNet. Experiments on the Raspberry Pi 4 demonstrate that our proposed system is capable of accurately and quickly detecting seven-segment displays. © 2022 IEEE.

Author keywords

deep learning; object recognition; Raspberry Pi; seven-segment display; TensorFlow

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