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Automatic number plate recognition for remote gate automation: An edge computing approach

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Abstract

The article proposes a gate automation system based on automatic number plate recognition (ANPR). The system uses a convolutional neural network (CNN) to identify and classify each number plate which is then compared to a database of authorized numbers before a gate is opened. Once the gate is opened an extra feature of alerting the farm settlement owner via SMS and LoRa is added. What this work tries to do is demonstrate the ability of an IoT-edge device to perform complex image processing computations simply by adding more computing resources at the edge. Edge computing suggests adding a powerful edge device to support edge devices however, we envision the extra computing power can be extended and embedded in the edge devices themselves. To demonstrate this we equip our edge device system with a single board computer to provide the needed computing resources for ANPR.