

Vision-Based Inventory Management for an Embedded System Lab

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(Dr. Chandana Gamage)

Signature of the Supervisor

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Abstract

A Technology involves, and computational power becomes available in many embedded systems such as cameras to provide high-quality images and high-speed image processing, computer vision-based object recognition and identification technologies have become useful in solving many computer-based research problems. One such interesting problem is inventory control and management of parts that are not readily identifiable with a part number, product code or an item name as is the conventional scenario. The range of models, components and parts that are available in an embedded systems laboratory of a computer engineering institution or company is quite extensive and many of these units tend to look similar and could be difficult to identify through a simple visual inspection. A smart inventory management system with the ability to intelligently identify different electronic and computing parts and components will be a useful addition to an embedded systems laboratory. This research thesis proposes a computer vision-based methodology for a smart inventory management system for an embedded systems laboratory to recognize equipment and features of equipment (device name, type, serial numbers, identification marks, and manufacturer details) for the people who are entrusted with keeping and issuing such devices in a laboratory. The focus of the research is to implement the inventory management system with a database of equipment's, which can be used in issuing and storing the equipment without while minimizing product identification errors when human expertise is not readily available.

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