Improving Retail Security Using Metallic Barcoding System

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Typically, retailers lose about 1.5% to 2% of their sales from the loss of inventory due to theft or errors. Employee and customer theft are the major causes of retail shrinkage. The aim of the project was to address the issue of theft in retail stores by enhancing security measures that could effectively prevent shoplifting. Ink was used to make barcodes more readable with a specialized stamp for accuracy and quality, and metallic powder was used to ensure detection by metallic barcode detectors. Over a period of eight days, five metallic barcode scanners were created, tested and compared. Each model was an improvement on the previous model. The latest and fifth model, which included an RFID reader and microprocessor, proved to be most effective. This model was able to detect 70% of the tags, emitting a sound for each detection. In this project, significant advances were made regarding a reliable metallic barcode security system. This was a foundational step with the potential to develop advanced security measures that can help retail businesses protect themselves from losses due to theft.

Awards Won: