

# An Enhanced EAN-13 Barcode Module for Monitoring Processed Consumable Products in Ghana

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## Abstract

When it comes to tracking goods from manufacturers to consumers, barcodes are useful instruments for monitoring and certifying their legitimacy. Because of its capacity to self-validate all generated codes, the EAN-13 is the most extensively used barcode for processed consumable products. Further investigations into the construction of the EAN-13 barcode revealed that several additional components were required to make the EAN-13 more credible for consumer use. Country code, production code, product code, and check digit make up the present EAN-13 format. Meanwhile, the type of product and the number of times it has been manufactured are key components that must be included in the EAN-13 barcode structure for barcode analysts to interpret. The study presented the GHBS-13, an upgraded barcode structure that captured the two new components, namely the product type and production count. The paper proposed a universal method called Tabiri Check Digit (TCD) as a mathematical means of easily computing the check digit of the two barcodes. The formula was validated using EAN-13 and GHBS-13 barcodes, and the results were correct. The study also established a central point platform for customers to use to validate processed consumable products they buy in Ghana

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