

Product Expiration Control in Modern Retail Outlets

Mariam Zedginidze^a coauthor Tsira Berikashvili^b

e-mail: mariami.zedginidze029@ens.tsu.edu.ge

^a Department of Computer Science, Faculty of Exact and Natural Sciences, Tbilisi State University, 2 University Street, Tbilisi

^b Ivane Javakhishvili Tbilisi State University, 1 Ilia Chavchavadze Avenue, Tbilisi

The aim of the project is to develop software that will address a product quality control problem in modern retail outlets—specifically, the manual monitoring of raw material expiration dates, which involves a high probability of human error and requires significant labor resources from staff.

The main challenge of the project is to create a system that minimizes manual work performed by personnel. This challenge is compounded by the fact that product packaging barcodes do not contain expiration date information. After studying the existing Georgian retail market and similar systems, we decided to develop software that uses barcode scanners to register each product in the store's internal database with all information available from the barcode, along with manually entered expiration dates. The system will perform daily monitoring of all products in the database and generate a list of items that must be removed from use; once these products are removed from shelves, they will be deleted from the database.

Implementing the system in retail outlets will significantly reduce staff workload and the likelihood of errors. We expect the system to play an important role in ensuring product quality in the market. Another advantage of the system is its scalability and ability to incorporate additional functionalities such as inventory control, point-of-sale (cashier) systems, HR management, and more. Ideally, a change in product barcode standards or distributor-provided invoice formats would increase the system's efficiency to up to 99%.