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Mobile application BioScan

Tunyan Edmon, Sazikov Rostislav
Fedorov Dmitriy, Kharlamov Sergey
Surgut State University, ITMO University

Introduction. Getting to know the application

Main idea

There is a need to create a tool that assists consumers in determining whether a product contains harmful additives and enables them to make more informed choices when purchasing and consuming food. This application will also be a useful tool for people with allergic reactions and those who follow a healthy lifestyle, helping them maintain a proper diet.

What is this needed for?

Mobile application

1. Not all consumers read product labels.
2. Consumers cannot determine the safety of the product on their own.
3. It helps make informed decisions regarding one's dietary choices.
4. Many existing applications and websites provide only partial information about products.
5. The chemical industry of food additives is developing rapidly.

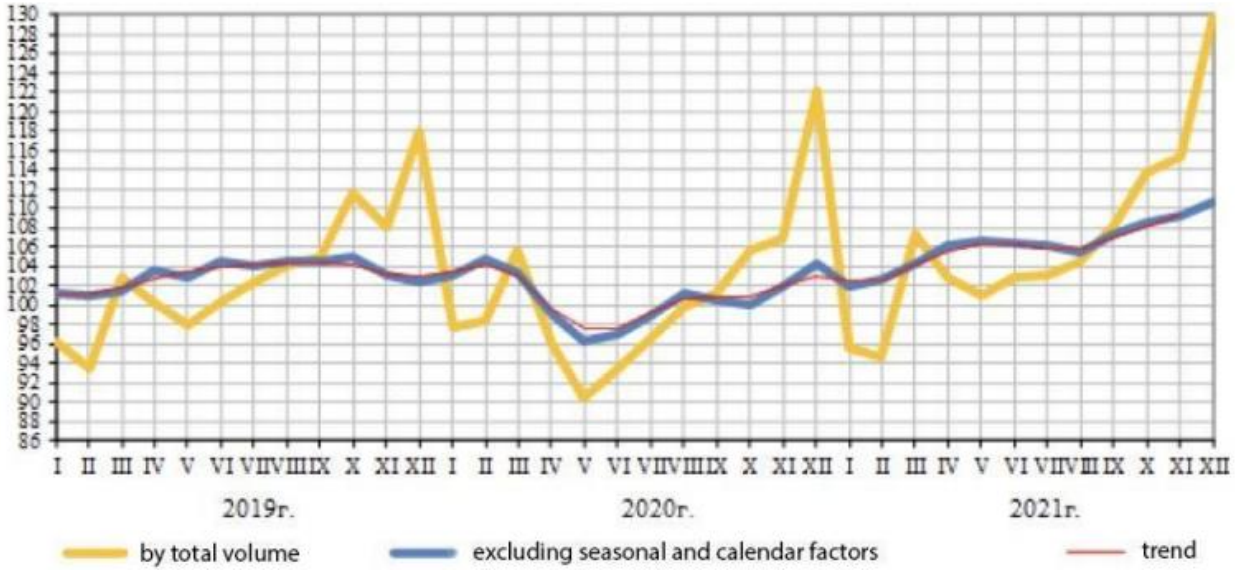

Fig. 1. Industrial production index as a percentage relative to the average monthly value in 2018.

Problems of services for the detection of harmful additives

Main problems

1. The quality of the food product database.
2. The lack of information about the majority of food products on the market (97%).
3. Outdated methods of collecting information from users.

Development

Mobile application

To develop the application, it was decided to use the most effective method, namely - web scraping.

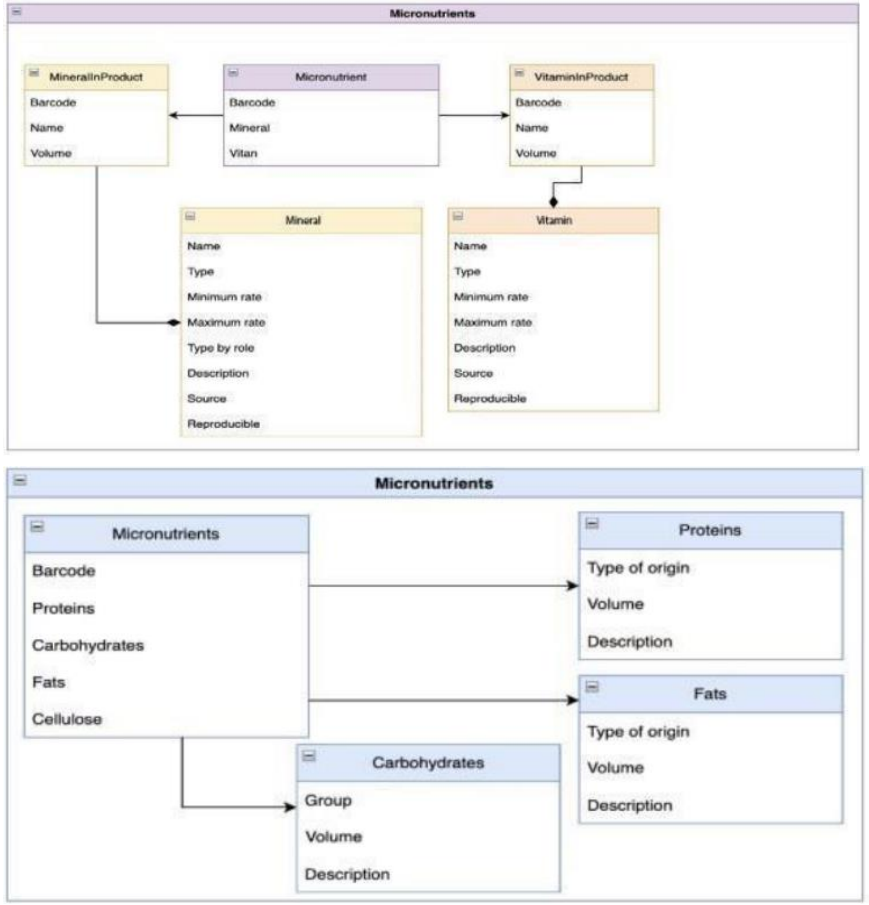

Fig. 2. Conceptual model of micronutrients and macronutrients

Development

Mobile application

Fig. 3. Conceptual product model

These diagrams represent the key components and structure of the application, which are integrated into models for efficient data processing of food products.

Development

Mobile application

1. The user scans the barcode.
2. The system searches for data in the local database.
3. The system searches for data in the global database.
4. The system makes queries to websites to find food product information.

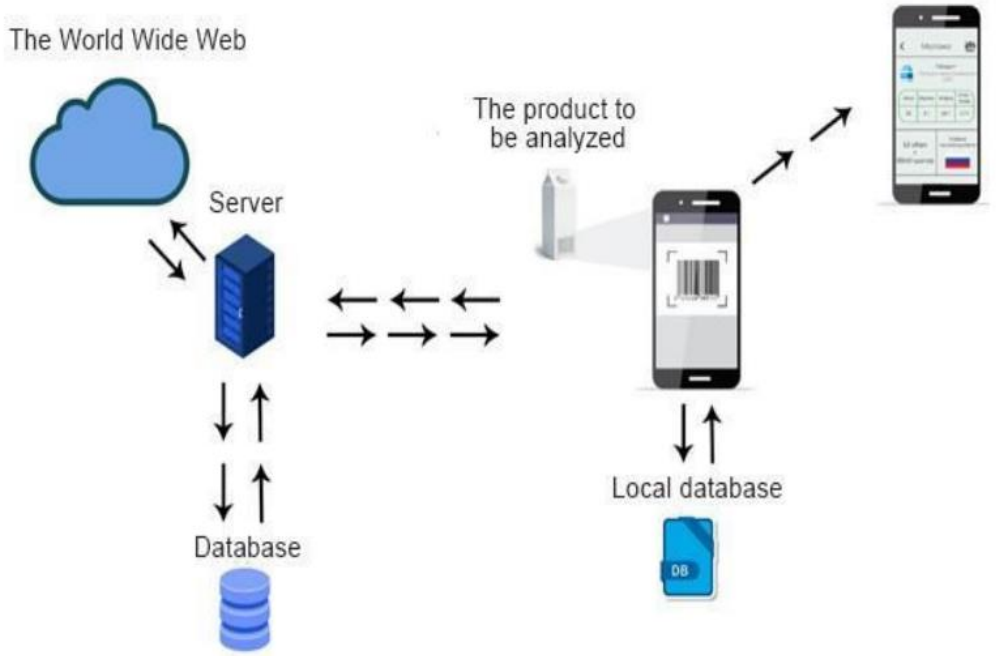

Fig. 4. The scheme of the application

Development

Mobile application

$$S = 100 - \frac{\sum_{n=0}^{adc} A_n}{abc} - \sum_{n=0}^{adc} C_n$$

This formula allows determining the level of product safety by summing up the values in array A while considering the safety coefficient C. The higher the value of S, the safer the product. It is essential to accurately define the values of array A and coefficients C to ensure a reliable calculation of product safety.

Experiments

Mobile application

The evaluations provided by the specialists are valuable information for further improvement and optimization of the applications, aiming to better meet the needs of users and provide a more convenient and efficient user experience.

Expert Assessment Results			
Criteria / Experts	1	2	3
Speed	6	8	5
Product availability ratio	9	10	10
Volume of information	10	8	10
Convenience	8	6	7

Table 1. Expert Assessment Results

Development

Mobile application

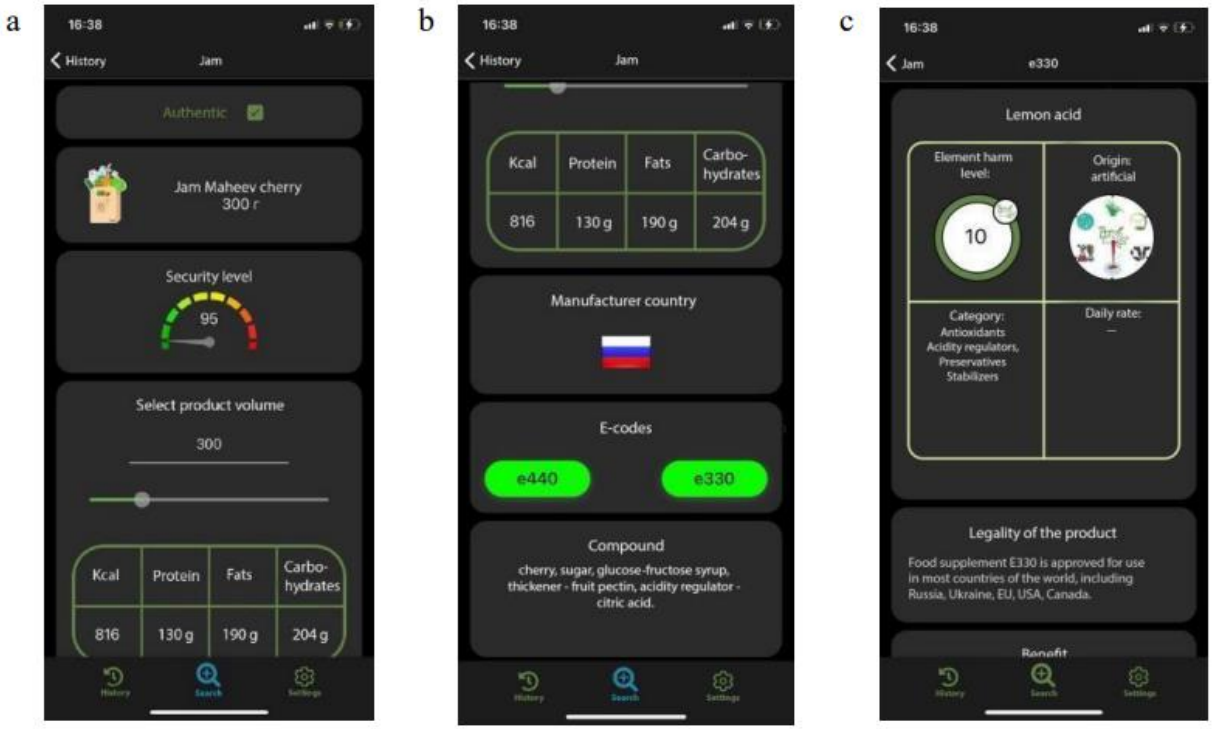

Fig. 5. (a) Product information; (b) detailed product information; (c) information about supplements.

The conducted analysis clearly confirms the superiority of the developed mobile application BioScan over its analogs.

Results		
Alternatives	Weight	%
Infood	0,13	13%
Naturometer	0,08	8%
Ingred	0,09	9%
My Food Allergies	0,13	13%
Honest sign	0,21	21%
BioScan	0,37	37%

Table 2. Results of the conducted analysis

Conclusion

Mobile application

Within the scope of a scientific project, a system for searching, analyzing, and providing data on the safety of food products based on food additives called BioScan has been successfully developed. The mobile application has been released on the App Store and Play Market platforms.

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Thanks for your attention