

Automation for the sustainable development of agriculture

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Abstract. This article explores the creation of an advanced automated information system tailored for the restaurant industry. This system not only streamlines customer engagement but also automates the entire transaction process, from initial interactions with potential patrons to profit realization. By implementing this automated information system, restaurants can significantly expedite employee collaboration within the establishment, making it more transparent, comprehensible, dependable, and less demanding.

1 Introduction

The modern world, at the moment, is difficult to imagine without the sphere of services and leisure. Now, as never before, this sphere is developing. The restaurant business has been a constituent part of the service sector for centuries. Without the restaurant and catering business is difficult to imagine the modern service sector. The average resident of a metropolis can no longer imagine his leisure time without going to a restaurant [1-4].

Restaurant business is developing at an accelerated pace in our high-tech time. This is due, first of all, to the growing exorbitant demand for this type of service. Thus, there is a lot of work to be done on the staff - many restaurants still use paper media to communicate some work information such as order information, delivery information, etc. In addition, competition is also increasing nowadays. Thus, to stay afloat in this lucrative but challenging business, it is necessary to entice the visitor with something other than deliciously tasty food. Each businessman is free to decide what to increase demand for his unique restaurant. But one of the simplest, but at the same time ingenious ways to attract new customers - is to simplify organisational issues. Such as food delivery, table reservations. These processes can and should be automated, transfer the load from the administrator to a clear, lightning-fast machine. As a result, as practice shows, the number of table bookings will increase, and delivery from the restaurant will increase many times over [5-10].

In addition, the system being developed will allow each employee to perform their duties in a monotonous structured mode, which will greatly simplify their duties and reduce the

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burden on the individual employee as such. Thus, the system can increase the motivation of each individual employee by reducing the amount of work to be done [11-13].

Simplified automated system, in addition, gives freedom to expand the business - thanks to automation, it is possible without increasing the load on the management staff, as such, to increase several times the service staff, which, of course, will affect the increase in the level of services provided [14-16].

Increasing the number of employees will favourably affect the time of cooking and food delivery. Indirectly, by improving the service of food delivery, you can expect an increase in the inflow of new customers, as well as brand recognition of the restaurant. Increasing the inflow of new customers, due to the increased popularity of the restaurant (due to the use of the latest technology, maximally simplifying the interaction of the client with the restaurant) will inevitably increase the load on the restaurant staff. The system being developed, in addition, also relieves the management, production and service staff by automating some processes that were previously carried out manually [17-20].

In addition, by removing some of the duties and responsibilities from the staff, it is possible to reduce their salaries, thereby reducing costs and increasing profits. To summarise, the relevance of the development of this system is primarily due to the need to increase the uniqueness of the enterprise, thereby increasing its recognisability and inevitably increase the flow of customers [21-23].

Thereby increasing the income of the enterprise. Secondly, the relevance is related to the reduction of staff responsibilities, thereby reducing the burden on staff, as well as reducing the responsibility of staff. In doing so, the profit will indirectly increase. This system will definitely allow the enterprise to increase its income. Thirdly, the relevance of automating this system will help the staff with their work responsibilities by automating some of the processes of interactions that were previously done manually. The implementation of automation for this enterprise will partially standardise the operation of the business as a whole, making it much easier to expand the business in the future [24].

The software is being developed to automate the work of the restaurant. The automation includes - online table booking, online ordering of food delivery from the restaurant. Information for employees, distributed by access levels: schedule and composition of the working shift, occupancy of the hall, information about the current order, an approximate estimate of the occupancy of the hall in the coming working hours [25].

2 Application structure

AIS should be developed as a desktop application. A separate full-featured mobile application designed to work on the Android 6.0 and higher operating system should also be developed. iOS 8.0 and higher. Software databases must be implemented in a PostgreSQL relational DBMS. The software processes confidential information and is an automated system in a secure execution.

AIS should be implemented using the technology Postgres in the form of five subsystems. The hardware part of the system is shown in Figure 1.



Fig. 1. Hardware part of the system

The AIS database server and application server should be created on the basis of post relational DBMS Cache. Client places for the developed AIS due to the complexity of the implemented functions should be developed on the basis of java-technology (applet - servlet) under the J2EE platform.

The automated system should be implemented using Cache technology in the form of four subsystems. The architecture of the system is presented in Figure 2.

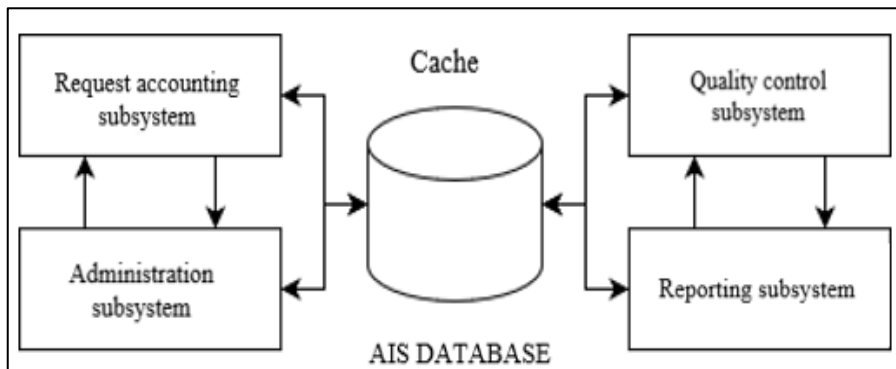


Fig. 2. AIS architecture

The request accounting subsystem is intended for entering the registration data on employees and performed requests, as well as information on the results of work performed. When implementing this subsystem, it is necessary to differentiate access to requests in accordance with the established levels of access to data.

The control subsystem is designed to track: the status of an employee's fulfilment of an individual work plan, service level and key performance indicators.

The report generation subsystem is intended for creating reports on quarterly performance results of both each employee individually and the division as a whole.

The administration subsystem is intended for registering system users and assigning them rights. The subsystems in the use case model are shown in Figure 3.

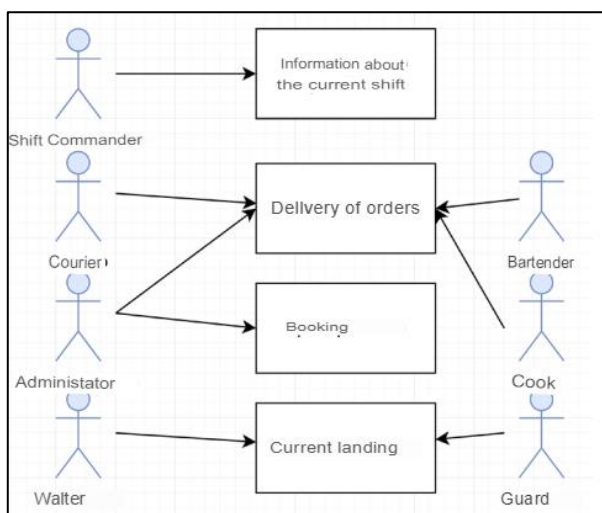


Fig. 3. Subsystems in the use case model

The development of the system should be carried out on the basis of an architecture-oriented approach. The selected life cycle model should allow iterative and incremental development of the system. It is assumed that all the listed works will be repeated at each iteration when implementing a subsystem or individual use cases .

3 Results

The automated information system will be developed using the algorithm shown in Figure 4 and implemented using the algorithm shown in Figure 5.

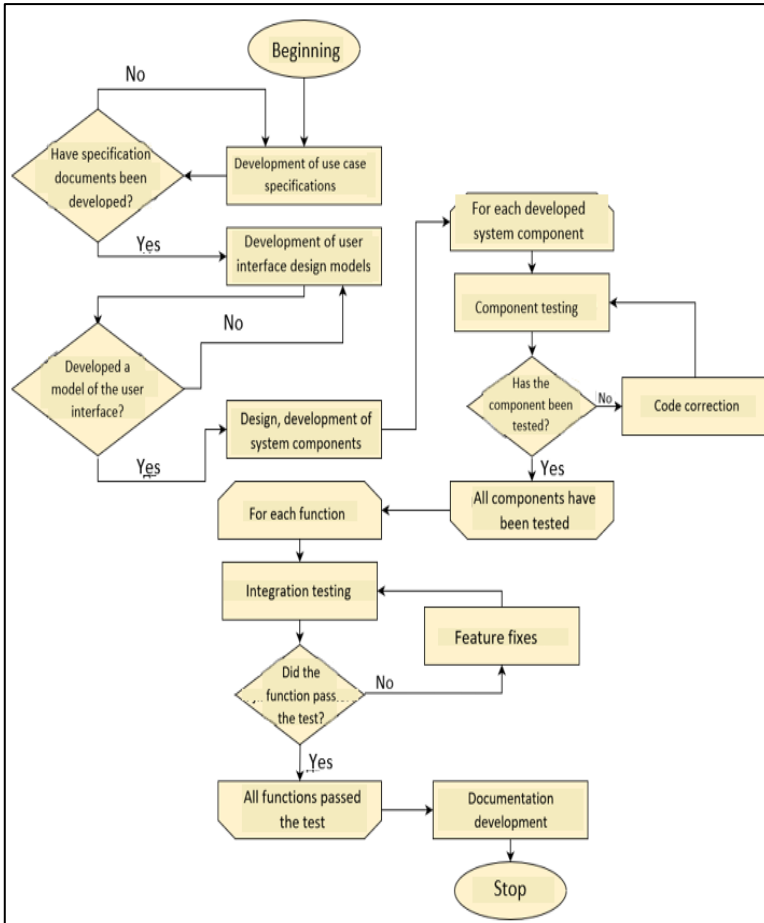


Fig. 4. Algorithm of AIS development

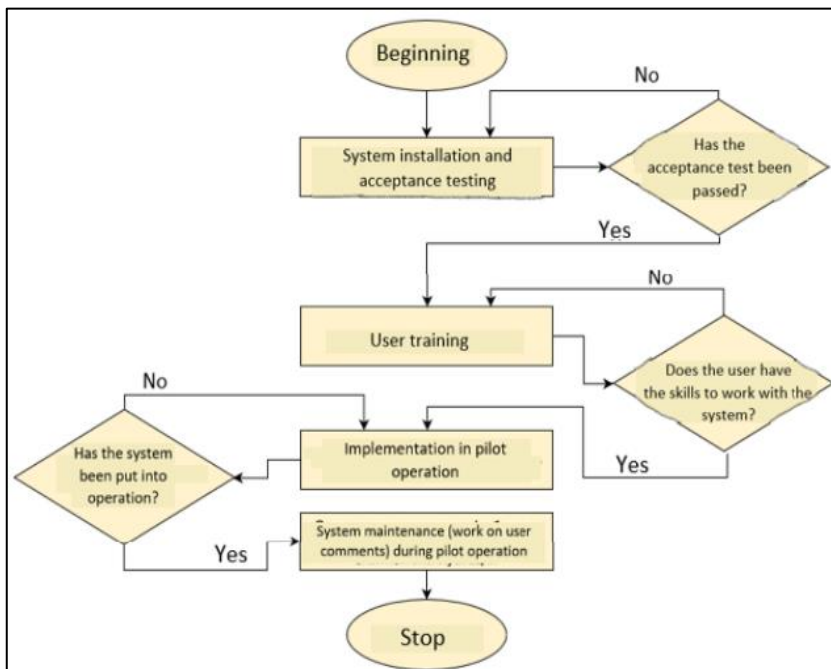


Fig. 5. Algorithm of AIS implementation

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