



Graduation Project Thesis
Defence Presentation

Techno Service App

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Abstract

This project presents a desktop-based automation software developed with C# and DevExpress, aiming to improve efficiency in technical service processes. It integrates customer management, product tracking, service operations, and billing into one centralized system. The architecture was built using system analysis methodology based on user requirements.

The resulting application offers fast, accurate, and systematic operations through a user-friendly interface and strong database infrastructure (SQL Server + Entity Framework). It reduces manual workload, minimizes error rates, and offers a practical, scalable solution for SMEs aiming for digital transformation.

Techno Service App



Welcome to Techno Service App!

Username

Password

Login

Exit

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Introduction

In today's digital age, managing technical service operations manually causes time loss, errors, and inefficiency. Especially for small and medium-sized enterprises, there is a growing need for practical and customizable automation solutions.

This project introduces a desktop-based software developed using C# and DevExpress, designed to digitize and optimize technical service workflows. The system aims to provide a user-friendly, fast, and accurate solution for service and product tracking.

The screenshot displays the 'Home Page - Fatih Techno Service App' interface. It features a navigation bar with icons for Home, Product, Customer, Personnel, Invoices and Activities, Tools, Report, and Contact. The main content area is divided into several sections:

- Critical Level**: A table with columns Product Name, Brand, Stock, Category, and Sale Price. It shows data for 'iphone 10' (Apple, 3 Telefon, 7,00) and 'DR456' (Dell, 8 Desktop, 99999,00).
- Directory**: A table with columns Customer N..., Phone, Email, District, Address, and Status. It lists customers like 'Fatih Aksu', 'Mehmet Gezer', 'Ayşe Gezmez', 'Fatma Ucan', 'Ali Haydar Aksu', and 'Onur Oruk'.
- Category - Product**: A table with columns Id, Produ..., Brand, Purch..., Sale P..., Stock, and Catego... It shows product details for 'DR456', 'Abra A5', and 'iphone 10'.
- Things to Do Today**: A table with columns Subject, Content, Date Added, and Date Read. It shows a task 'Fatura Hakkında' with a due date of 3.05.2025.
- Summary Cards**: Three cards on the right side of the interface:
 - Total sales today**: ₺0,00
 - Last product sold**: DR456
 - Staff selling the most products**: Tarık Aksu



Sectoral Problems

In many small and medium-sized enterprises, technical service and product tracking operations are still managed with manual methods such as Excel files, paperwork, or outdated software. This leads to data loss, tracking errors, low efficiency, and a lack of integration between service, inventory, and customer management processes.

Main Reason

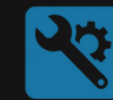
Most commercial software systems are either too complex, too expensive, or too generic, failing to meet the daily operational requirements of businesses in the technical service sector.

Specific Reason

Many companies do not have dedicated IT personnel or a strategy for digital transformation, which results in the continued reliance on outdated manual methods and fragmented data management systems.



Literature Review



Importance of Automation

Automation systems reduce human error, save time, and increase operational efficiency. They are now widely adopted across industries for tasks like inventory control, billing, and service tracking.



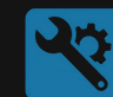
Role of C# and DevExpress

C# provides strong object-oriented programming support, while DevExpress offers rich UI components. This combination is commonly used to create modern, responsive desktop applications.



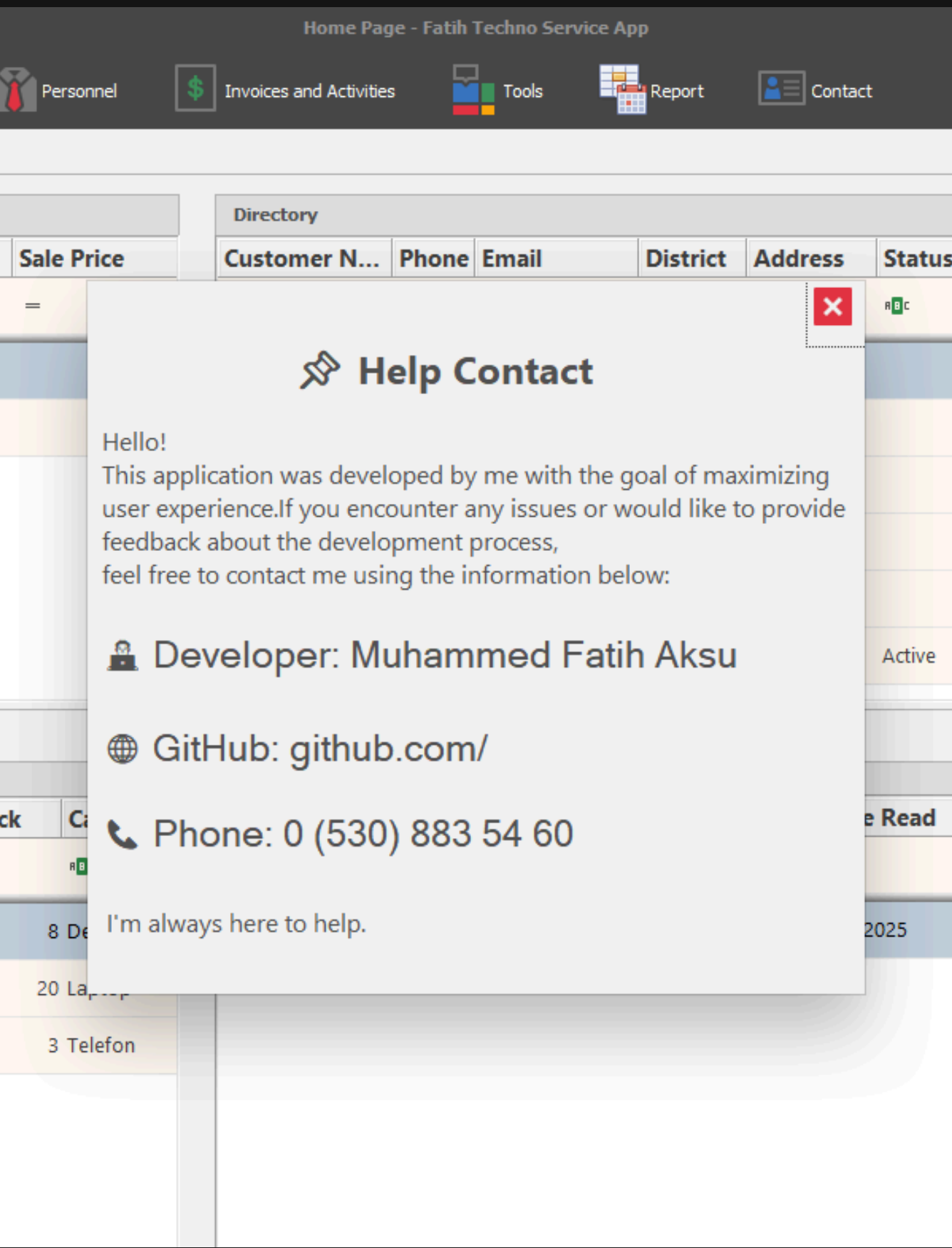
Existing Gaps in the Market

Many existing solutions are either too general or not user-friendly. Few systems are tailored specifically for technical service operations in SMEs.



Contributions of This Study

This project addresses the gap by offering a modular, user-centered automation system. It combines academic analysis with real-world application using up-to-date technologies.



Theoritical Framework

Overview

This project uses system analysis and object-oriented design to develop a scalable, efficient, and user-friendly desktop application. Tools like C#, DevExpress, and Entity Framework form the core of its technical framework.

Proponent

As the developer of this system, I applied both theoretical knowledge and practical skills gained during my education. My goal was to create a real-world solution that reflects core principles of software engineering, while addressing the operational challenges faced by SMEs in technical service management.

Solutions

Manual service tracking and fragmented data systems cause inefficiencies in many SMEs. These issues lead to delays, data loss, and customer dissatisfaction. There is a clear need for an integrated, practical software solution.

Main Solution

This project offers a centralized desktop application that automates customer, product, and service tracking. Built with C# and DevExpress, it streamlines operations, reduces errors, and improves workflow consistency.

Specific Solution

The system allows users to register service requests, assign technicians, track repair status, and manage invoices—all from a single interface. With SQL Server and Entity Framework, data security and integrity are maintained throughout the process.

GIRESUN: %16,7

KASTAMONU: %16,7

Hypothesis on Academic View

From an academic perspective, it is hypothesized that implementing a modular, desktop-based automation system—developed using C# and DevExpress—will demonstrate measurable improvements in technical service management by aligning software engineering principles with real-world operational needs.

The hypothesis is grounded in the assumption that structured system analysis, object-oriented design, and database-driven architecture can collectively enhance accuracy, reduce human error, and optimize service workflows in small and medium-sized enterprises.

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Methodology

Design

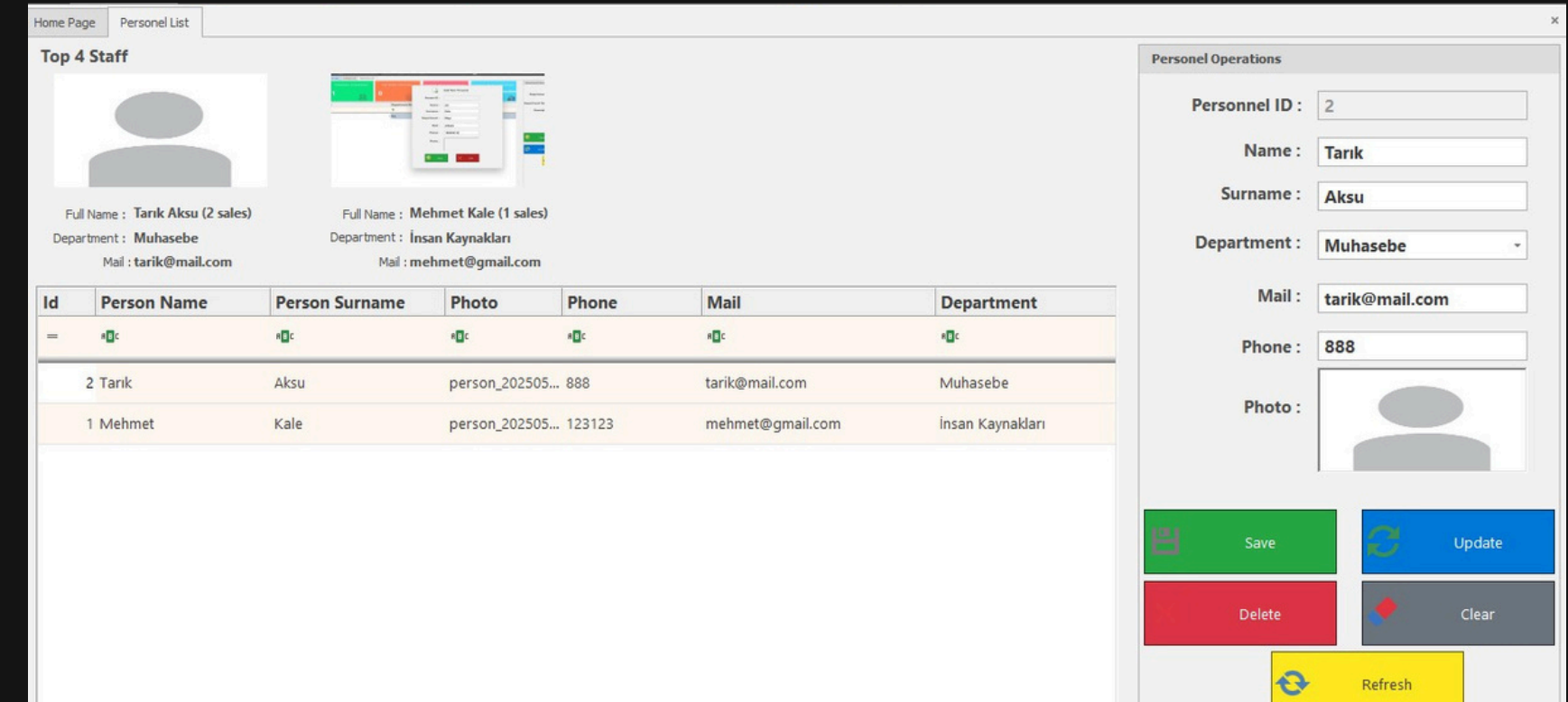
Based on the analysis, a modular system design was created. Functionalities such as customer registration, product tracking, service record management, and billing were structured. The interface was designed using DevExpress to ensure ease of use and professional appearance.

Methods and Refinement

After the initial development, the system was tested under real-world conditions. User feedback was collected and improvements were made to enhance performance, usability, and accuracy. This iterative process ensured the software met the operational needs effectively.

Implementation

The implementation phase of this project involved transforming the system design and requirements into a fully functional desktop application. This stage focused on using appropriate technologies and programming methods to develop a scalable, user-friendly, and efficient software system tailored to the technical service sector.



*Example of an user interface.



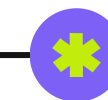
Main Focus

The user interface was developed using DevExpress components within a Windows Forms environment. Visual consistency, ease of navigation, and role-based access were prioritized to ensure a smooth user experience for technicians, service staff, and administrators.



Database Layer

Microsoft SQL Server was used as the database platform. Tables were created for users, customers, products, service records, and invoices. Entity Framework was implemented to manage data operations, enforce relationships, and ensure data integrity through primary and foreign key structures.



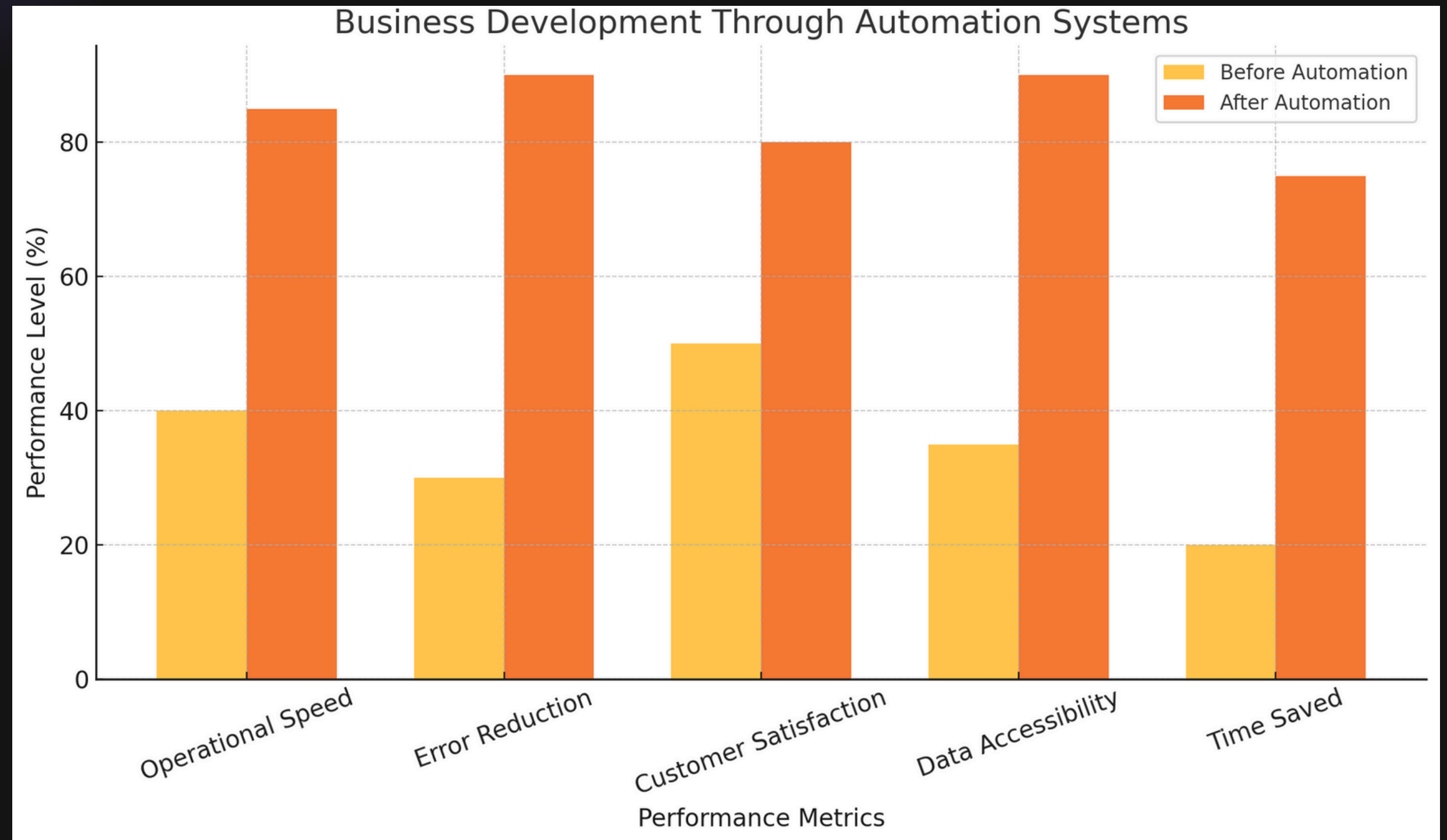
Functions Layer

All core functionalities—such as service request creation, product tracking, technician assignment, and invoicing—were coded in C#. After development, iterative testing was conducted to identify bugs, optimize performance, and refine the system based on real user feedback.

Result

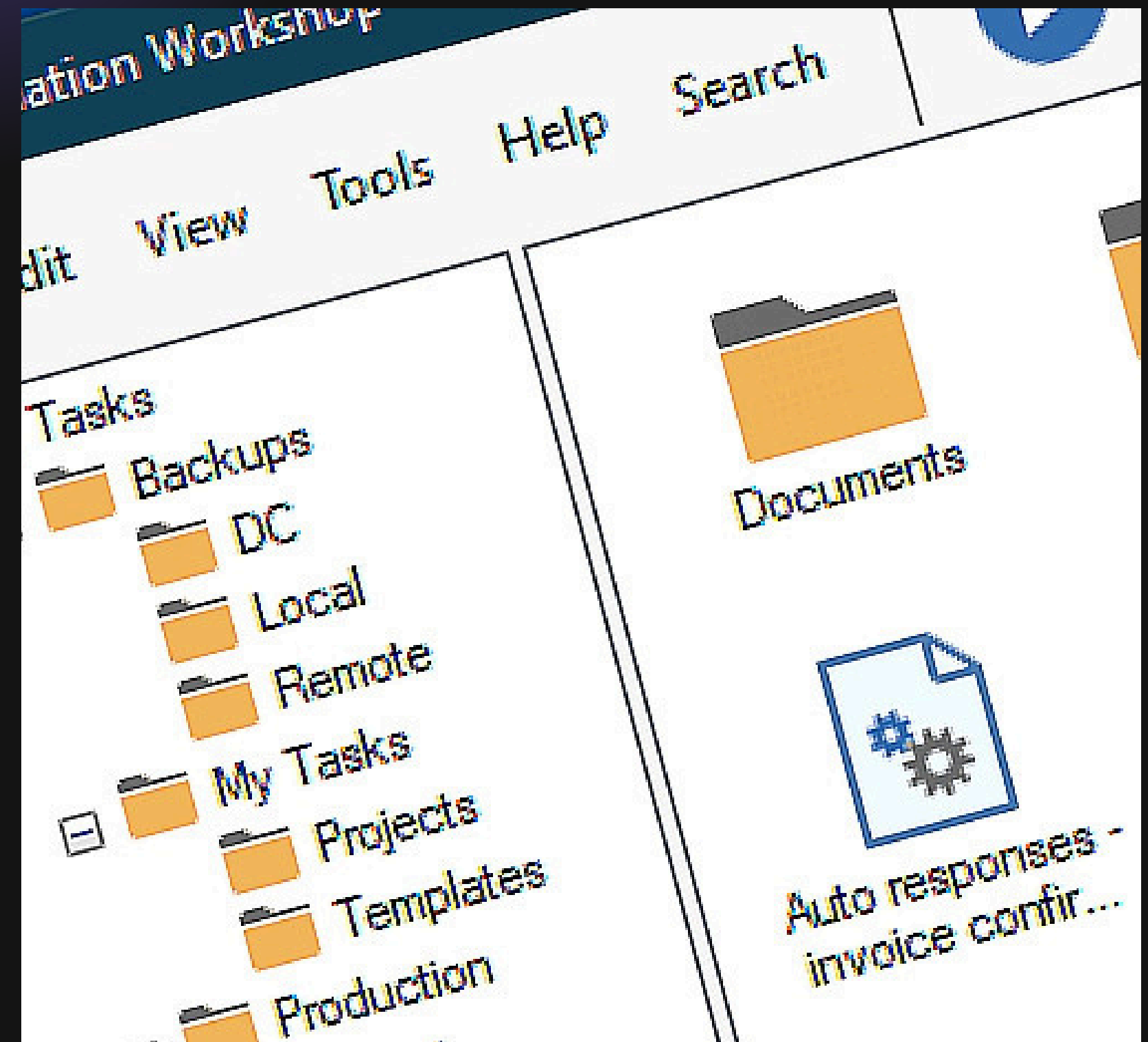
The graph clearly illustrates the significant improvements achieved through automation systems in key business performance areas. Operational speed and data accessibility nearly doubled, while error rates drastically dropped, contributing to smoother workflows. Notably, customer satisfaction and time savings also saw substantial increases, proving that automation not only optimizes internal processes but also enhances the overall service experience. These results highlight the transformative impact of well-designed software solutions in SMEs.

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Discussion

Centralizing processes such as customer management, service tracking, and invoicing, the software reduced manual errors and increased operational speed. User feedback confirmed that the interface was easy to use and the modular structure made the system flexible for future updates. Overall, the project demonstrated that combining practical needs with modern technologies like C#, DevExpress, and SQL Server can lead to measurable improvements in efficiency, accuracy, and customer satisfaction.



Recommendation

Based on the results and feedback obtained throughout the project, several recommendations have been developed to enhance the effectiveness and scalability of the system. These suggestions aim to expand the software's usability and improve its long-term sustainability in real business environments.

Main Recommendation

The system should be expanded to support web-based and mobile platforms to increase accessibility and platform independence. Additionally, implementing multi-user architecture with role-based access control would enhance system security and support collaborative workflows.

Specific Recommendation

- Develop a mobile version (Android/iOS) for on-site technician access.
- Integrate cloud backup and restore features for data security.
- Add AI-powered fault prediction to improve service speed.
- Conduct wider user testing with diverse business types for broader feedback.



Thank You So Much

**Presentation By Muhammed
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