Advanced Software Engineering Laboratory CS6471

LAB-02 Feasibility Study Report

Motor Part Shop Software (MPSS)

YASH GOYANI
223CS3149
Masters Of Technology
223cs3149@nitrkl.ac.in

Department of Computer Science & Engineering
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1 Introduction

In the fast-paced world of automobile spare parts retail, efficient inventory management and sales tracking are essential for profitability and customer satisfaction. This feasibility study explores the potential development of Motor Part Shop Software (MPSS) for a small automobile spare parts shop. This software aims to streamline sales and supply ordering processes, ensuring optimal stock levels and reducing inventory overheads. The primary objective is to calculate and maintain an appropriate threshold inventory level for each item, enabling the shop owner to order parts promptly as stock dwindles. This report evaluates the feasibility, benefits, costs, risks, and legal considerations associated with implementing MPSS.

2 Management Summary and Recommendations

2.1 Management Summary

As the system is required by small automobile spare parts shop it is recommended to make GUI and functionalities easy to use and understandable, with minimum operating overhead and in a way that it is feasible to use and manage in a shop environment.

The developed system will prove to be more effective and advantageous than existing manual system as it will cut manual overhead spent in analysing sales and calculating the purchase order quantities.

2.2 Recommendations

The system can sustain digital records for longer time which will help make algorithm more tuned to the statistics based on time and season. this can be included in future scope of study.

3 Alternatives

3.1 Off-the-Shelf Software

Buying off the shelf software can be easy on pocket as it will be available cheap than developing customized software.
However it can be costly considering maintenance and customization, moreover it might not fulfil all the requirements of the user.

3.2 Mobile Application

The system can be designed as mobile application. The benefit of the mobile application is that will be easy to use as users nowadays are more familiar with mobile application use and common GUI functionalities.
The limitation of this alternative is that if requirement if for multiple users each user will have to install application on their device and centralizing the statistics will come with additional overhead of developing a server to centralize data storage.
Moreover as we have multiple OS environments for mobiles it might not be operable on different OS for which system is not developed. i.e. Android software will not work on iOS OS. That introduces limitation on use from only intended OS. Or customer will have to pay extra to develop software for each OS.
Most mobile phones are now capable of large storage space and processing however we can not expect

it to sustain the records for longer period of time and also the data have higher chance of being lost in case on device database is used.

3.3 Web Application

Developing web application can be beneficial as it will provide flexibility in system supported and multiple users can use the app simultaneously. It can be hosted locally on shop premises and can be accessed from as many devices as needed. The data will be in central database and with appropriate server which can also be normal PC it will be more than enough for required functionalities.
The limitation of this system is that if hosted locally user will not be able to access it outside shop premises. if customer requires that system is accessible from anywhere there will be additional overhead of renting a domain and deploying the application on same.
We will be moving ahead with web based application as it fulfil all the requirements and the limitation is not a problem as the customer intends to use the software from shop premises.

4 System Description

The developed Motor Part Shop Software (MPSS) software will be custom built web based application specifically made for needs of small automobile spare parts shop. with below functionalities.

- **Real Time Inventory Management**: To handle inventory management consisting of sales tracking and generation supply ordering report.

- **Threshold Calculation**: To process average weekly sales for each individual parts and calculate optimal supply order threshold that can eliminate the possibility of unavailability or inventory overflow.

- **Weekly Order Generation**: Generate supply order on daily basis with part number, the amount required and the address of the vendor supplying the part to ease ordering process.

- **Generate Revenue Report**: Generate daily and monthly revenue reports and statistical graph representing sales for each day of month.

As it will be web based application, it will be hosted locally in shop on a computer which can be accessed from same computer or any device capable of internet browsing which is connected to shop network.

5 Cost-Benefit Analysis

5.1 Benefits Analysis

- **Efficient Inventory Management**: MPSS will enable the shop owner to track inventory levels in real-time, calculate optimal reorder points, and generate automated purchase orders, reducing stock outs and overstock situation

- **Enhanced Customer Satisfaction**: With the ability to quickly order and restock parts, the shop can consistently meet customer demands, improving customer satisfaction and loyalty.

- **Data-Driven Decision Making**: The software will provide valuable insights into daily and monthly sales trends, empowering the shop owner to make informed business decisions.

- **Cost Reduction**: Implementing just-in-time (JIT) inventory principles will reduce carrying costs and free up working capital.

5.2 Cost Analysis

- **Development Cost**: Initial development cost will take up significant part of total cost. It will include design, coding and testing costs.

- **Hardware Cost**: A computer will be needed to host website and a local network configuration will be needed to make it accessible to other devices which can be done via single router.

- **Maintenance Cost**: To maintain the software and adapt new changes and data backup costs in case user wants to sustain digital records for longer period.

6 Evaluation of Technical Risk

There is no technical risk involved with respect to technologies as all the web based technologies that are required for this software is readily available with free of cost alternatives. However a little assistance might be needed in initial phase after delivery of software to make customer accustomed to all the functionalities of the software. There can be also risk of data security which can solved by valid authentication and authorization mechanism.

7 Legal Ramification

As the software is custom built with all the free of cost open source technologies it does not attract any legal actions with implementation point of view.
It also does not break any legal laws as the system requirements are not illegal and it is legal to develop custom made software.
The software will be solely owned by customer once development is completed and payment to development firm is completed. Customer may use the software as they seem fit and they can distribute it to other customers in case they wish to.
only maintenance charge will be levied upon customer as per change basis.

8 Conclusion

In conclusion, the development of Motor Part Shop Software (MPSS) is a viable and beneficial solution for the small automobile spare parts shop. It offers the potential to optimize inventory management, enhance customer satisfaction, and increase profitability. With proper risk mitigation and legal compliance, the implementation of MPSS is recommended to improve the shop's overall operations.