Introduction

1.1 Overview of the project

AskAMech is an online question and answer system which automates the process of having to call or drive up to the shop (dealer) to ask questions about their cars. AskAMech is a web-based application that provides interfaces for various stake holders (mechanics and clients). Questions can be added to the system with their associated parameters, and the mechanics and clients can answer those questions. Moreover, AskAMech is capable of marking an answer as an accepted answer for the question. These will create an extra touchpoint with their clients and will create a good relationship that results in repeat business for mechanics.

1.2 Objectives of the project

The objectives of this project are to-

* Automate the process of asking questions
* Provide an online question and answer platform
* Provide the ability to mark answer as an accepted answer to help others with similar question
* Makes it easy to check for questions based on key words
* Provide the ability to view profile of other users
* Develop a central database of answers for each question

1.3 The need for the project

We are the largest network of car mechanics in south Africa and we serve thousands of clients daily. We are looking for additional ways to serve our clients in order to make our services even more Valuable by automating the process of asking questions and getting responses. Other than questions, AskAMech is capable of supporting text and links.

1.4 Overview of Existing Systems and Technologies

The internal system that they use to serve their clients daily that does not have the use cases implemented in the AskAMech. AskAMech is only concerned with questions and answers of clients and mechanics, unlike the existing system that they have to serve their clients daily.

Main technologies associated with AskAMech.

* Web programming technologies (C#, HTML, CSS)
* SQL (Database)
* Diagram and design tools (Visio, Draw.IO, Microsoft project)

1.5 Scope of the Project

Main actors of this system

* Mechanics
* Clients

Main use cases associated:

# Mechanics and clients (customers)

* + - View content without a login
    - Ask a question/ edit question
    - Answer a question/ edit answer
    - A user that has posted a question can mark an answer as the accepted answer
    - View the profile of any user to view their published questions
    - View a list of questions
    - View a question with its answers (accepted answer at the top)

1.6 Deliverables.

A web-based software system. This contains a central database and functionalities for

various actors or stakeholders. Different GUIs will be provided to different users to interact with.

# Feasibility Study

## Financial Feasibility

Being a web-based AskAMech will have an associated hosting cost. Since the system doesn’t consist of any multimedia data transfer, this application requires very low bandwidth for operation. The system complies with the standards of freeware software. The potential customers and mechanics will not be charged any costs. There will be an associated service level agreement cost of bug fixes and maintenance of tasks. At the initial stage, there will be an upfront cost for development. Also, the potential market space will be the local clients and mechanics. Beside the associated cost, there will be many benefits for the clients.

From these it’s clear that the project AskAMech is financially feasible.

## Technical Feasibility

Project AskAMech is a complete web-based application. The main technologies and tools that

are associated with AskAMech are;

* C# MVC
* HTML/ RAZOR
* CSS
* SQL
* Visual studio
* Diagram drawing tools
  + 1. Visio
    2. Draw.IO
    3. Microsoft Project

Every software is freely available and the requisite technical skills are manageable. Product development time limits (constraints) and ease of use are coordinated using these technologies.

The web-application will be initially hosted in a free web hosting facility but for later implementations in a paid web hosting space with ample bandwidth. The needed bandwidth for this web-application is very small, since it doesn’t incorporate any multimedia aspect.

From these it’s clear that the project AskAMech is technically feasible.

## Resource and Time Feasibility

Resource feasibility

Resources that are required for the OES project includes;

* Programming device (Desktop)
* Hosting space (freely available)
* Programming tools (freely available)
* Programming individuals

So, it’s clear that the project AskAMech has the required resource feasibility.

## Risk Feasibility

Risk feasibility can be discussed under several contexts.

### Risk associated with size

Estimated size of the product in line of codes:

* Being a web application with limited users/stakeholders, AskAMech will contain less significant amount of code lines. As the system doesn’t any multimedia aspect, the file sizes and the complete project size will not exceed 100MB.

Estimated size of product in number of programs:

* The application will be constructed as a single web application with a single login page rather than having many numbers of sites for different users. Depending on the access rights, the contents will be showed or hidden.

Size of database created or used by the product:

* Database size will not exceed the values supported by SQL. Number of relations and entities are minimized by using best practices of normalization theories.

### Business impact risks

Effect of this product on company revenue:

* AskAMech can be implemented either as an individual system, or can be integrated to an existing system if they have one in place. Since it automates some key, this can create a good relationship with clients that results in repeat business for mechanics which in turn can increase the revenue.

Reasonableness of delivery deadlines:

* The project will have several deadlines and deliverables that are scheduled successively by using continuous delivery and agile development practices. Depending on the coding and designing cost and effort, the deadlines are quite reasonable.

Number of customers who will use this product and the consistency of their need’s relative to the product:

* As mentioned above, we can categorize stakeholders into 2 main categories. This system can support many numbers of users simultaneously due to the low bandwidth requirements.

Sophistication of end users:

* Usability is highly enabled by providing help documents and making GUIs easy to use.

Costs associated with delivery:

* At the initial stage the associated cost will be for the hosting cost.

### Development environment risks

Is a software project management tool available?

* Microsoft Project will be used as the main project management tool.

Are tools for analysis and design available?

AskAMech will require several designing software

* Draw.IO (database design)
* Visio (class diagram & Software related diagrams)

Are testing tools available and appropriate for the product to be built?

* NUNIT is the main testing tool that will be used. NUNIT is freely available tool that supports automated testing.

Are software configuration management tools available?

* Configuration management will be done using GIT that is freely available.

Does the environment make use of a database or repository?

* This is a database-oriented system that will use SQL Server Management Studio.

Are all the software tools integrated with one another?

* Main deliverables will be packaged under a single project. All the stake holders will have a single login page.

### Technology risks

Is the technology to be built new?

* All the technologies are very well established and old enough (but not obsolete).

# Considerations

Performance:

AskAMech requires a very low bandwidth, hence the performance will not degrade with increasing number of potential users. At the development stage, a free hosting service will be used. But when installing the system to a mechanics environment, it will be hosted in a much more reliable server to increase the performance.

SQL will provide the adequate speed for database transactions. Since no big data analysis is done, SQL is the ideal database for this project.

* Response time: less than 2 seconds
* Processing time: Less than 2 seconds (no batch processing involved)
* Query and reporting times: yet to be tested
* Throughput: yet to be tested
* Storage: yet to be tested

Security:

* Security measures are provided in many aspects in this system.

User authentication:

* Users will have to authenticate using the username and passwords.

Depending on the access level each user will gain functionality of the system. Passwords can be changed by the user.

Usability and ease of use: Users will be provided with a complete user manual as a pdf. The interfaces are designed to make it easy for any potential user to get familiar with the system within one hour. No additional training is required to use the system.

Availability: System will be available throughout the 24 hours. Mean time to failure and mean time to repair will be decided to increase the availability. With a paid hosting space, the availability can be guaranteed to a great precision.

Maintainability: AskAMech is designed using the best practices of RUP and OOP. Since every single segment in the system is very well structured, the system is highly maintainable. Hence the separation of each task is improved, hence maintainability improved.

# References

(groups.engin.umd.umich.edu/CIS/course.des/cis375/projects/, n.d.) (eyefodder.com/2011/06/, n.d.)