BioAnalytical TECHNOLOGIES
where software touches life™

ADD-ON APPLICATIONS

Case Study

Domain: Analytical Instrumentation

Type: Add-On Software

"Software basically used for mass-spectrometer designed for protein identification and characterization and drug metabolism studies"

Development of add-on applications for client specific software requirements for the LC-MS instruments

Delivered close to 100 add-on applications and have been working on diverse requirements as an extended arm with ongoing services to existing clients

Challenge	• **To capture the knowledge of existing software for LC-MS instruments and its application:** B.A.T. to provide solution by developing add-on application as a utility on existing software • **Quick turn around time and first time right deliverables**
Solution	• B.A.T. has setup dedicated team comprising of domain specialists and software developers to deliver the solutions. The domain specialists have hands-on experience on analytical instruments and interfacing software to understand and translate client requirements for development and successful delivery of solutions.
Sample Case	• **To integrate existing software to a network with data files being stored on servers those are different than the computer doing the actual acquisition.** B.A.T. developed the utility that- notifies with emails to people assigned at the time of batch submission, processes the data and generates a result table. **This Sample Case is explained in detail in the subsequent sections.**

BioAnalytical TECHNOLOGIES
where software touches life™

Assessing The Solution:

The client is a leading global manufacturer and supplier from North America, who manufactures mass spectroscopy instruments along with the software. The client offers proven market leadership in mass spectrometry and sets the gold standard for high-performance bioanalytical measurement systems.

B.A.T. assiduously assessed the requirements of the client and recommended a solution of deploying add-on application to their existing software for the LC-MS instruments. The advanced specifications and requirements were predetermined by the client.

The customer being a leading global name in the field of mass spectroscopy, B.A.T. had to ensure that robustness and quality of the development adhering their existing stringent standards.

Delivering The Solution:

Client approached B.A.T. for assistance. B.A.T. team assessed the exact requirement of the client and decided to follow **"B.A.T. Compact Process"** for successful project management. This handled very well client's immediate and expected future needs.

B.A.T. is equipped with Multidisciplinary skills; the experts of different streams required for the project were involved in the process of software development for accurate and professional delivery. B.A.T. worked closely with the client for perfect and timely delivery. The team included Domain experts, software developers, software testers etc.

Correct understanding of the application, the core software and end-user perspective is extremely critical to provide appropriated solutions, consequently B.A.T. handled this entire process very smoothly and professionally which was well appreciated by the client.

The key factor of the add-on modules and feature development is quick turn around time and ensuring quality of the software delivered.

Key Technologies:

- Visual basic 6.0
- LCMS Software programming interface
- Testing covered exploratory/ regression
- C#.net windows based application
- Framework 2.0
- Testing on Instruments (acquisition testing related enhancements)

Methodology:

An imperative element of this project was the commendable methodology. This entire process from requirement analysis to the final delivery was handled vigilantly and professionally. This process comprised of five important stages and which followed stringent work pattern for the team.

Stage 1- Requirement Analysis

This was the initial stage where requirement of the client was thoughtfully analyzed by the domain experts of B.A.T. An implementation document was prepared which specified the solution evolved by B.A.T.

Stage 2- Solution Proposed

B.A.T. team presented the implementation document to the client. Close working relationship with the client and strong domain knowledge helped B.A.T. to propose effective and preeminent solution to the client.

Stage 3- Implementation/ Coding

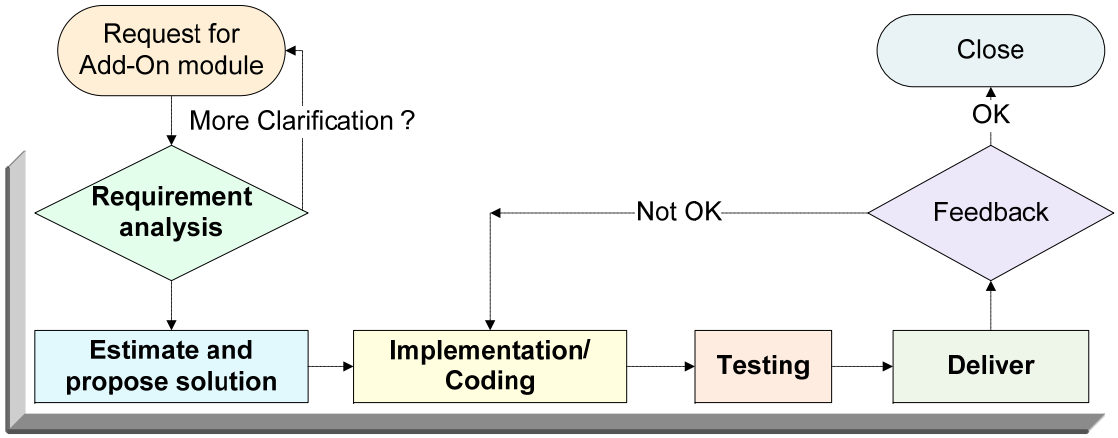
This stage included detailed study of existing software of the client in terms of story tests, available interfaces of existing software, program flow flowcharts, etc. The development team after collecting all the necessary inputs developed the actual feature and carried out unit testing on the software.

Stage 4- Testing

To ensured quality and remarkable delivery, the developed software strictly underwent functional and domain testing before being delivered to the client.

Stage 5- Delivery

Correct understanding of the application, the core software and end-user perspective eased the whole process. Also complete knowledge of Domain, effectively deployed add-on modules and excellent project management helped B.A.T. to provide enhancement support to the client by New Feature Development in their current software.



Expertise Shared:

This project exclusively required Script Development for customer specific requirements, Feature Enhancement and bug fixing. B.A.T. team shared expertise for the LC-MS, a high performance instrument designed for protein identification and characterization and drug metabolism studies. Effective add-on modules were deployed with new advanced parameters to the existing software.

The client required the existing software to be completely integrated into a network with data files being stored on servers those are different than the computer doing the actual acquisition. However, there is no convenient method to determine that a batch had completed acquisition unless the user uses the specific computer doing the acquisition. Moreover, there was no method to alert a laboratory technician incase instrument fails (a software crash, LC device failure, etc.). However a need of utility was recognized that sends an email to notify when the batch successfully finishes acquisition, or when there is some failure during the acquisition. This utility would speed up the turn around time between when a batch is acquired and is eventually processed, and when a fault is detected with acquisition and a lab technician investigates the problem.

The software team, after collecting all the necessary inputs, developed the Script i.e. a utility that sends emails to pre-assigned people under the following conditions (the people are assigned at the time of batch submission):

(a) After the acquisition of a batch and the data is ready for processing
(b) If the duration of a sample in the batch exceeds twice the expected acquisition time
(c) If there is an error during the acquisition like pump or auto-sampler failure
(d) If there are problems with detecting the internal standard in the batch

In addition to sending emails to the user upon batch completion, the utility also attempts to process the data and generate a results table. All the results table generated were further able to be exported to a network folder.

Benefits:

- The utility provided an extended arm to the existing software, controlling acquisition activities by minimizing failures while acquiring batches.
- With this utility, it is now possible to save all the data files on central repository.
- The project was completed in time and the client was able to provide qualifying newer requirements expected by the market.