



SMS Solutions Improves Enterprise Productivity

J2ME & PHP powered SMS solution for daily data collection from remote areas

Executive Summary

When you have a business which is spread across geographies, as the business owner, one of your prime focus areas might be consolidation of data from various sources and then analyzing the same to determine the trends and predict the forecasts, as accurately as possible. It is needless to say that slight modifications to the data from the points of sale might prove disastrous. Doing business in remote diverse areas has its own advantages including lesser costs of operation, lesser costs of maintenance, lesser perceived risks but it comes with its own share of thorns.

The data collected from your point of sales face issues reaching your central processing server. Getting the data intact from the points of sale, regional offices, remote work stations etc does in fact become a bottleneck in areas which are not connected via the internet or where the internet speeds are low. And when your business has to collect data from agricultural fields, where you can not always carry a laptop, the problem of centralized data collection amplifies.

About our Client

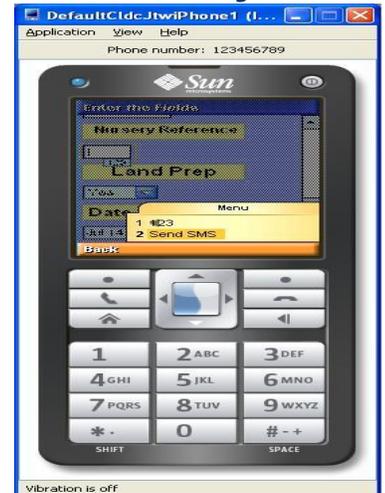
Client Renewable Energy Provider | **Location** Australia | **Industry** Renewable Energy Industry

Business Situation

A leading renewable energy services company with an agricultural services wing in Australia was facing a similar kind of problem. Its business demanded every farmer to send the details to the regional center on a daily basis. This data was rolled into the central server from all the regional centers in the night. The next day morning, the top management used the data for analysis. After few months of operation in this mode, the company management sensed something wrong. Based on the usage of fertilizers by the farmers in Area A, they had dispatched the fertilizers to Area B, acquired newly, just near to Area A, assuming that the requirement would be within deviation of 10-20%. When the fertilizers were sent to Area B, it was found that the amount is grossly inadequate. This increased quite a lot of the costs – new estimates, new invoicing for the fertilizers, time delay in getting them, arrangement of transport vehicles and host of other additional costs.

The code looks very good and we are very happy with the design and structure. I just loved the speed with which you guys worked! Hope our next project gets started soon!

In another case, another area had sent their harvest as X millions pounds per square mile. And the logistics and transportation department and the packaging and distribution department had been instructed accordingly. However, when the trucks reached the area, it was found that the trucks are insufficient and there is much larger produce than was reported. This created a situation because packaging department would not wait for a delay and logistics department could not get more trucks to carry the produce. Rains would have started and the company ended up paying lot more than needed for the logistics.





Issues as these if happen across half your geographies, then it is evident, how much losses would one incur. The Australian agricultural company was looking for an alternate solution using Mobiles. Leveraging mobile phone networks for data transfer seemed like a viable solution. It was at this time that the client contacted Mindfire Solutions..

Solution Details

The Mindfire Solution

Mindfire had previously worked with number of mobile development projects and couple of them related to short messaging service (SMS). It took Mindfire one discussion to figure out the architecture of the application. Mindfire not only used the SMS feature in the mobile application for sending data but also made the data update a web portal dashboard and eliminated the daily data entry by the regional centers, thereby reducing the room for further errors.

The system was built with an intention to make it lightweight, user friendly yet highly robust and secure. It took one brainstorming session to finalize the architecture for the client.

Achievements

- We created a greatly simplified design and workflow based mechanism.
- The system designs are extensible – it is easy to add more reporting features, support/integrate with multiple tools.

Technologies

- Technologies used: J2ME, PHP, MYSQL, SMS Gateway

Final Results

Software System

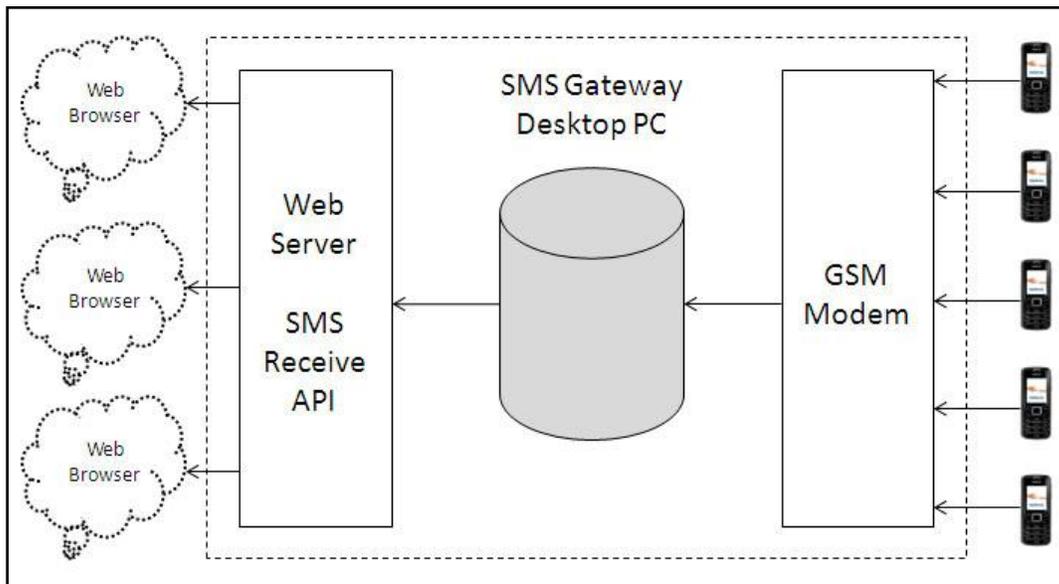


Figure 1 – System Architecture of the SMS Solution System

A custom SMS application was built which was fed into the phone. This application had security authentication features which identified a user from his credentials and the phone. After validation, it then allowed the user to enter the data in the needed format. Once the user hit the 'Send' button, the data was encrypted and sent to a GSM modem which is



attached to a SMS gateway, which was a Desktop computer in this case. This SMS gateway checks the encryption and this provides an additional layer of data security. This is then passed on to a Web server based SMS Receive API which decrypts the information and parses the same. Upon successful parse, it sends the data into the web-browser for display. This way, without any manual intervention and without Internet, the data from the remotest part can be transferred without any inconvenience directly to the analysis web-dashboard.

The system consisted of 2 parts:

1. **Mobile Application** – This was built to be installed on the phone. The phone model was provided by the company and the application was built on the same.
2. **MySQL Database with PHP Frontend** – Once the data was received by the SMS gateway; the data is stored in SQL Server Database and displayed in the browser with PHP frontend.

Customer Benefits

- Mindfire has excellent understanding of the business, architectural, operational, customer base specific considerations and requirements for various steps/versions of the complete system roadmap.
- Working with Mindfire, the client continues to benefit from excellent talent at Mindfire and reduced overall cost for the software product development along with growth in their business.

Future Relationship

Mindfire not only helped the customer quickly turnaround the situation of continual data loss but also helped the customer to remove the data entry at the regional centers by proposing and building the system which took the data from the user and assimilated the data into a form which can be directly analyzed via the dashboard. The client was very happy with the work of Mindfire and has already started another project on similar lines which is about 10 times larger than the project above. This new project would mean a new stronger relationship with the client. And as always – Mindfire met its goal of having added another customer delighted with its services.