
Project: Development of Fleet Management System for a Cab Company

The Customer

Our client is one of the largest taxi companies of the world which was formed in 1995 and today operates a fleet of about 5000 vehicles. The Fleet Management System (FMS) is a collection of processes, tools and interfaces to perform the Administration and Management of information regarding Drivers, vehicle, rentals, vehicle performance and management, accident claims, etc.

The Business Need

Faced with challenges to maximize revenues with existing fleet and staff and innovating technology to keep costs down, the client partnered with NIIT Technologies to facilitate development of a Fleet Management System with the basic objectives to:

- Optimal use of fleet and staff/drivers
- Reduced operational overheads
- Speedy and on-time reporting to customer
- Control spoilage of resources
- Prevent unexpected down-time
- Payment management
- Integration with systems for financials

Solution

NIIT Technologies developed a complete Fleet Management System for the client from scratch and thereafter has been involved with support and maintenance of the system.

The solution consisted of developing the following business modules:

- Driver Administration
- Rental Management
- Security Deposit Management
- Collection/Payment facilities
- Welfare and benefits
- Fleet administration
- Interface to Oracle Financials, Satellite system, engineering system
- Interactive voice response system for drivers
- Interface to bank transaction system
- Training
- Customer Feedback Management
- Accident Administration

Driver Administration

Driver Administration module manages and administer driver related information from the stage of selection of driver to termination.

- Driver details are captured in the system and an interview is conducted. After the interview the result of interview as accepted/rejected will be entered. The acceptance/rejection letter is sent to driver after the interview.

- After the selection of the drivers, system accepts their preference of vehicle type. When the required vehicle type is available, it is allocated to the driver. Drivers are required to pay the admin charges, stamp fee, security deposit etc. before the vehicle can be released to them.
- System allows part payment of deposit by the drivers and the remaining is adjusted from their salaries.
- Drivers can be terminated on their own wish, or if client decides to terminate them for some reason. A notice period of usually 14 days is given to drivers to return the vehicle after the termination request is accepted. Drivers may need to return the vehicle 2-3 days before the actual termination date, if engineering division needs to repair the vehicle. Relief driver(s) associated with the hirer are automatically terminated on hirer's termination.
- A list of black-listed drivers is also maintained to make sure that these drivers do not apply in future. Information of blacklisted drivers can be sent to other taxi companies in Singapore, if they are blacklisted.

Rental Management

This module manages the rent collection for the vehicles from hirers.

- Vehicle rent is collected from hirers on the daily basis through their GIRO bank accounts. Rent for the vehicle is defined by the engine capacity and the age of the vehicle. Vehicle rent is subject to GST as per Singapore rules.
- System calculates the rent for the uptime of the vehicle and details of down-time are read from the engineering application and a refund for pro-rated amount for down-time hours is made.
- Drivers are also refunded for the corporate trips. These trips are for the client's corporate customers, who do not pay cash immediately. Data-entry for such trips is done by despatch system. FMS reads these trip details and refund the amount to drivers through GIRO.
- A monthly statement is generated for all the hirers indicating the details of all transactions during the month.
- Collection of vehicle rent can be done by cash for the rental arrears.
- In case the vehicle rent is not paid for a few days, a penalty is levied to driver as per user defined rules. Reminder letters, Repossession letters or Termination letters can also be generated in case of non-payment of vehicle rent for long time.

Security Deposit Management

This module manages the security deposit amount paid by drivers.

- All the drivers have to pay a security deposit before they start driving the vehicles. Hirers and relief drivers pay a different amount as security deposit.
- System accepts security deposit in installments. A schedule of installments is given to the driver after the payment of first installment.
- After the first installment, which is paid in cash, all remaining installments are paid by GIRO. On the specified date the collection request for the next installment is included in the rent collection GIRO tape.

- In the event of GIRO collection failure, a reminder letter is sent to the driver, and the GIRO record is again sent for collection after 15 days. If the installment is not paid after the second attempt also then a repossession letter or termination letter for the driver may be generated.
- After the collection of the last installment, a letter of confirmation is sent to the driver.
- System allows maintaining the security deposit rules. In case the security deposit amount is changed, the drivers may be required to pay additional security deposit or they might be refunded some security deposit depending on whether the amount is increased or decreased. In such cases the letters are sent to drivers to inform them about the additional payments and their schedule.
- After the driver is terminated, all his liabilities like rental arrears, accident or repair liability etc. is adjusted from his security deposit and the balance is refunded to the driver.

Collection/Payment facilities

This module manages the collections and payments from/to drivers.

- Collections from drivers can be accepted at the cash counter or through GIRO.
- System records payments at the cash counter by cash or cheque or NETS or credit cards. A receipt is generated for each payment. One receipt may have more than one transaction from the same driver. A receipt number is generated automatically for each receipt.
- Cash receipts can not be modified or deleted after they are saved to database. If there is a requirement to modify any transaction in a receipt, a negative receipt has to be generated to cancel the earlier one.
- System generates a cash collection summary report listing all cash transactions in the day and prints the summary of amount collected as cash, cheques, NETS etc.
- Daily GIRO tape is generated to collect rent from drivers. Any refund transactions to drivers for downtime or corporate trips are also included in this tape.
- The GIRO tape is processed by the bank, in the night and next morning the result of all the transactions is received in the 'return tape'. This return tape is used to process the paid status of all the GIRO records generated in previous evening. Summary reports are generated for the total GIRO collection for each day.
- A monthly report on the total CPF collection from each driver is sent to CPF board.
- System allows creating miscellaneous transactions for drivers for various collections/refunds. These transactions are entered in a batch by data-entry operator. These are sent to bank for processing after they have been verified by the authorised person.
- When any refunds to the driver are made through cheques, the cheque details are entered in the system.

Welfare and benefits

This module manages the details of driver benefits by incentive and donation schemes.

- System allows creating incentive scheme for hirers and driver staff.
- Drivers may have some bonus or penalty transactions in their incentive.
- If any report is obtained from traffic police about the traffic offences committed by a driver, its details are captured and the incentive penalty is levied automatically.

- At the end of the bonus period, the effective bonus amount is paid to the driver through GIRO. If penalty deductions are more than the basic incentive amount, and effective bonus is negative then no bonus is paid to driver.
- Detailed statement for incentive bonus/penalty transactions are printed for drivers while making the bonus payments.
- Donation schemes are set up as a form of insurance among drivers in case of death of a driver, where a fixed donation amount is collected from all drivers in the scheme to be paid to a recipient who is also part of the scheme.
- There may be several different donation schemes active at a time, and each driver may opt to participate in more than one schemes.

Fleet administration

This module is used to manage and administer information related to vehicle fleet including vehicle replacement/projection, Renewal of road tax/Radio license and control functions. This module generates the taxi performance indicator reports, based on the taxi meter readings and other vehicle related information

- System allows capturing Taxi meter reading when taxis come to workshop every 3 weeks.
- System analyses the meter reading to generate income and performance indicator reports indicating average actual mileage, engaged mileage, no. of trips and income.

Interfaces

Fleet management system interfaces with three other applications within the client's IT infrastructure. These applications are engineering system, Despatch system, Finance and IVR system. All these applications are using Oracle RDBMS.

- Engineering system maintains the vehicle details. Vehicle information is read from engineering database. The details on downtime of vehicle, cost of repair etc. are also be read from engineering database.
- Engineering and Despatch applications need driver details which are maintained by FMS. These details are made available to these applications from FMS's database.
- Despatch system maintains the corporate trip details for drivers. This information is read by FMS to refund the amount for these trips to drivers.
- Finance needs the information on daily cash collection through different modes (Cash, cheques, GIRO etc.). FMS posts Finance about the daily collection into different account codes in their General Ledger.
- Details about the refunds, which are to be paid through cheques is also given to finance for the cheque preparation.
- Some other reports and queries are also provided for finance to view different financial details/summaries from FMS database
- System allows interfacing IVR system to provide online assistance to drivers on Personal insurance claim status, GIRO enquiries, Total rental arrears, security deposit, accident liability, incentives, job refunds, and downtime details

Training

This module used to manage and administer training related information. The major functionality covered includes

- Maintaining master training details
- Capturing applicant details
- Interfacing LTA system to transfer applicant details
- Assigning courses to applicants and maintaining the test results

Complaints & commendations

This module is used to manage and administer Complaints & commendations related information for drivers.

- Any complaints made by customers against drivers are recorded by the system.
- System generates letters to inform driver about the complaint. The investigation officer interviews the driver to perform the investigation. After investigation is complete, the action against driver is recommended. In some cases the final decision is finalized by the committee. The action may be a warning letter, penalty in incentive or termination
- Any recommendations or compliments for drivers are also recorded in the system. In this case drivers may be rewarded by extra bonus payments after investigation. Same data-entry screen is used for both complaints and commendations.
- System also generates monthly summary reports regarding the complaints received.

Accident Administration

This module records the details of the accident and manages the accident claims from and to the third party. The accident report details are also to be maintained which will be downloaded to the Insurance broker of the client. The module also keeps an account of the liability paid by the driver for the accident and computes the incentive deduction, if required.

- The accident details are entered in the system with the police report. An accident can involve one or more than one vehicles.
- System allows maintaining the details of the accident along with the faltering authority. Client claims a compensation for the downtime from the workshop. System generates a batch file for a work shop which consists of a list of compensation amounts for different accident cases. If approved, an invoice is raised by the finance department to claim the compensation amount. The receipt of the payment details are entered in the system against the batch.
- If the driver is to be charged for the liability, then system bills him for the damages. Depending upon the repair cost an incentive deduction, liability amount is calculated.
- The driver is also billed the repair cost amount for non accident cases also. The billed amount can be paid by the driver in installments.

Environment

Software: Power Builder 5.x

Hardware: HP 9000 K 100 Server

Tools: System Architect (CASE)

OS: HP-UX, MS-Windows Workgroups

Database: Oracle 7.x

Benefits

FMS system helps the client to perform their mission critical operations like Driver administration, Allocation of taxis to drivers, Rent collection for vehicles from drivers, Accident administration, Driver training, Incentives etc. The company is deriving the following benefits from FMS:

- Up-to-date and detailed information about taxis and drivers to dispatch operators, for faster and better service to calling customers.
- On-time and accurate performance analysis of its fleet operations, which enables the client to improve quality of service.
- On-line self-inquiry to taxi drivers to enable them check their account status
- Faster payments to drivers for their trips paid by corporate cards.
- Better management of driver's accounts in organization and follow-up of payments.
- Faster processing of new driver applications and allocation of taxis to waiting drivers.

This system has been commissioned in Jan 1996. Since then regularly new schemes been introduced for the benefit of the drivers as well as customer and company.

From an application perspective, the system has gone through migration of front-end (from PB5 to PB7) and back-end (from Oracle7 to Oracle8i). NIIT Technologies is also involved with web-enabling the FMS.