

VEHICLE DATABASE MANAGEMENT



Government of Mandya, Karnataka

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Executive summary

According to survey done in Mandya District in 2013, the number of unclaimed vehicles lying across the 30 police stations were around 1700 in which maximum were two wheelers. So it was essential to find systemic and scientific way to dispose of these vehicles

It was also important to categorize vehicles into their types like those that have been stolen, those that have been involved in crime, those involved in accidents and those that have been abandoned. For better management it was important to make a database management system that can store the data of vehicles and match the details to vehicles lying the police station to the FIRs that have launched across police station so that vehicle can be returned to its rightful owner. Also, it might be possible vehicle of one area might be lying in the police station of other area.

The challenge in disposal of unclaimed vehicles was that there use to be delay in getting information about RC book from RTO. To overcome this issue, Mandya government approached Ministry of Surface Transport and Highways and applied for username and password for website called vahan.nic.in. This website has real time data of all the RTO across India. So with access to this website, any police station in the district can get the owner details of the unclaimed vehicle lying in their Police station by giving either registration number or engine number or chassis number. Then successful/unsuccessful match to the unclaimed vehicle can be done

Introduction

Unclaimed vehicles with lots of dust and rust on them lying at police stations are a common sight throughout India. These vehicles can be classified into four groups

1. Vehicles involved in Crime and seized by police
2. Vehicles involved in accident cases and seized by police.
3. Stolen vehicles recovered by police from thieves.
4. Vehicles abandoned by thieves or by drunkards.

Many vehicles that are involved in crime and accident are not claimed back by owners because these vehicles do not have legitimate documents to prove their ownership. Often these vehicles are stolen vehicles which are purchased without any documentation and at very cheap rates.

Stolen vehicles that have been recovered by police from thieves also lie in police stations for two reasons. Once the photo of officer who has detected stolen vehicles comes in newspaper he loses pretty much interest in that case thinking that the accused has been arrested and his work has been appreciated. Secondly the procedure to know the owner of vehicle is that one has to send the details of the vehicles to RTO and he in turn will send the RC book details. But often this process takes lots of time and many times the vehicle must have been brought and sold by three to four owners without updating the RC book. So it becomes difficult to track the last owner.

In the year 2013 a survey was done in Mandya District to know how many vehicles have been lying unclaimed in its 30 police stations. The answer was around 1700 vehicles which

include maximum motor cycles and then three wheelers, four wheeler and trucks etc. were about 5-10 percent of the total. Approximate value of the vehicles comes around **Five Crore Rupees**. This much property is lying across 30 police stations of one district and getting rusted with every passing day. On various occasions public, senior officers and politicians made requests to dispose of the vehicles at police stations as it gives a gloomy look to the police station premises. So all these factors forced the government to think about systematic and scientific ways to ensure that the unclaimed vehicles are returned to the legitimate owner and our station premises are made cleaner.

Overview of the project owner

Bhushan Gulabrao Borase

IPS, Superintendent of Police, Mandya District, Mandya, Karnataka.

The experience of the project owner has been challenging and versatile. As he says “This project is a systematic and scientific approach to address the most neglected issue of unclaimed vehicles in the police stations. A rough estimate suggests that the value of unclaimed vehicles in police stations across India may be about 26000 Crores. It is a criminal wastage on the part of the system that we are not able to return it to the owners. This project is first and solid step towards solving that problem. The project has already got approval for implementation in entire Karnataka State and hence in coming days we hope that more and more vehicles will be returned to the owners and police stations will start looking cleaner. The project has full potential to replicate it in all over India. We are ready to share technical knowhow with any state in the country and with our fellow policemen. Also the mobile app has also been developed and used by us that can empower policemen in the field. One more ambitious project of developing a scanner is taken by us. We are trying to develop a scanner which will be able to tell if the chassis number or engine number of the vehicle is original or not. This work is in pipeline. Thus we are trying to attend the issue of disposal of unclaimed vehicles in holistic manner.

The problem faced so far is of change management. It takes tremendous energy to convince our own men and officers to make use of technology to make things easier. Otherwise there is no other problem in implementation of the project”

Project overview

Scope of services

- Workflow/approval process is electronic i.e., Data updating and data matching is done through a computer program.
- Database is digitized.

Innovativeness

Uniqueness of this work lies in that fact that for the first time an attempt has been made to match database of unclaimed vehicles in the police stations with the database of stolen vehicles of Karnataka. With data digitization, lots of data are generated every year but rarely that data are used again for service delivery other than the original intent of data collection. Also, in order to make data uploading and data matching faster & accurate, software was developed with the help of local Engineering College final year students of Computer Engineering. This software helps in data updating and data matching at very high speed. Also, identification and removal of bottleneck has been done.

Modalities of the new system

Baseline study

First of all, statistics of all the unclaimed vehicles lying in the police stations were collected. The number is a dynamic figure and it keeps changing every month as vehicles keep getting added and released from police stations. In earlier system, disposal of the vehicles was done through RTO by getting the details of the owner and then by contacting the owner. One short cut method of vehicle disposal from the police station is to get permission from the court to auction those unclaimed vehicles and then do auction.

Auction method has some serious drawbacks

1. The legitimate owner of the vehicle does not get his vehicle.
2. The proceed so collected does not gets reflected as property recovery done by the police.

During this study, it was also observed that no systematic and organized effort is done at any police station level to know as to how many vehicles are lying in other police stations and is there any possibility that vehicle stolen in one police station limits may be lying unclaimed in another police station premises.

Rollout/implementation model

1. The data of unclaimed vehicles lying in all the police stations were collected in a prescribed format.
2. National Crime Record Bureau has one program in which data of stolen vehicles is updated every month. This data is fed into one program called **Motor Vehicle Verification Counter**. This program is available at all SP offices for the benefit of buyer of second hand vehicles. The

buyer applies in a prescribed format saying that these are the details of second hand vehicle he is planning to buy and all the database is checked to know whether that vehicle is a stolen one or not. Same is communicated in writing to the applicant. The backend data of this program were extracted and fed into the new software designed by PES College of Engineering Student for Mandya District Police.

3. With the help of username and password for the website vahan.nic.in, officers had access to the entire database that RTO of India has.

4. Final step was to match the data of unclaimed vehicles with that of the stolen vehicles. The result was that officers could trace 494 numbers of vehicles to their FIR.

This was a revelation in itself because many vehicles that were stolen in one of the police station of the Mandya District were lying unclaimed in another police station of the same Mandya District. Many vehicles that were stolen in neighboring districts were also lying unclaimed in police stations of Mandya District. Then systematic efforts have been taken to send the vehicles to the legitimate owner through the concerned police station.

Communication and dissemination strategy used:

The strategy was that the SP communicated about this project with all the district officials like DSP, PI and PSI. The team in turn after going back to the police stations spoke with their ASI, HC & PC. So everybody was aware that what exactly the team is doing and why.

Technology

This project is powered by free software called Ubuntu 12.04 LTS operating system (LINUX). This is accompanied with following different software and tools:

- 1) HTML5
- 2) PHP3
- 3) MySQL
- 4) JQuery
- 5) CSS3 and JavaScript
- 6) Apache 2 Server
- 7) Designing Tools like inkscape and gimp

Interoperability

This project is designed to work in intranet so that any Karnataka State Police Station of any region could able to access the portal with a particular IP address, by placing their project in the main server. The project theme is distributed type of system and this Interoperability is checked by empowering the code in one of the server in Mandya, SP office and accessing the Information and Services of project from any other isolated system in Mandya District Police stations with the help of intranet connection

Security concerns

To make the project secured, the team selected LINUX as the platform which has inbuilt firewall and software packages which provide effective security to the data and information stored. Apart

from that the project has inbuilt codes and security measures which provides no services and results to anonymous person or unauthenticated persons. This project provides authenticated user id and password for all the police station of the District and using his information, the user in police station can get facilities of this project

Any issue with the technology used

The usability of the software depends on its interface; hence, the project has high graphical user interface which is made using high level languages which is supported by latest browsers only. Before the project was deployed, all the systems in police station were using Mozilla Firefox 4.0 and resulting to miss match in alignment and interface. To overcome this demerit, the project embeds latest version of Firefox 29.0 which the user can download and install locally.

Service level Agreements (SLAs)

Since this project is developed by final year computer science engineering students, they have developed with their own interest as their final year project.

Citizen centricity

- i) Citizen has to put in almost zero effort in this work except than being in touch with the SHO of police station where the FIR has been registered.
- ii) Feedback/grievance redressal mechanism can be taken at police station level
- iii) Audit Trails: There is no money transaction involved
- iv) Interactive platform for service delivery: In future the team is planning to make use of “SMS” service for data access and communication

Adaptability and scalability

The best feature of this project is that it can be implemented at entire State Level as well as National Level. For a small district like Mandya with a population of about 21 Lakhs, there are about 1700 vehicles lying in police stations having worth of about 5 Crore Rupees. Hence, for Karnataka with 30 districts and four Commissionerates the value of the unclaimed vehicles may be to the tune of **200 Crores**. With the population of Six Crores in Karnataka, there are unclaimed vehicles worth about 200 Crores lying in police stations. So for the country of about 120 Crores, the approximate value of unclaimed vehicles lying in Police Station premises all over India may come around **4000 Crores**.

As far as implementation of this work at state level is concerned, it can very easily be done by integrating the data matching codes in existing Police IT network of Karnataka Police. For other states where police stations are not connected by intranet, small servers at district level and state level will be sufficient to get this work done in an organized way and in systematic manner.

As far as software is concerned, as of now it has been developed at zero cost with the help of final year engineering students. The same can be shared with other states without any cost. Hardware cost is the only cost that those states need to bear. Hardware requirement will be just a server, a monitor, and a CPU and internet connection at each district level. This work can be definitely replicated at state level and national level with little bit of hard work and will.

Adaptability Analysis

(i) Measures to ensure adaptability and scalability

For ensuring adaptability and scalability at State and National Level, the team needs a standardized formats for data collection, data upgradation and data matching. To begin with, these formats are ready at Mandya District level and are in use. Once they start replicating this project in other districts, any changes can be made depending on the feedback from the field. The software developed at present has already been developed for the entire Karnataka State. Only there was a need for a demo at all district level and start getting data of the unclaimed vehicles lying at their police stations. A system administrator can update data of stolen vehicles in this software to have up to date information for data matching.

(ii) Measures to ensure replicability

To replicate it in other districts, a demonstration to all the SHO is sufficient. The team needs to train a team of a system administrator and two computer operators which can supervise the progress of the work. For training two days are sufficient.

Efficiency enhancement

(i) Volume of transactions processed

Once all the districts start feeding the data, volume of unclaimed vehicles will definitely increase on real time basis. As of now, data of all the stolen vehicles of Karnataka State are about 1, 23,000 vehicles. In terms of present hardware capacity, these data can be very easily handled.

(ii) Coping with transaction volume growth

Once more districts are involved; there are chances that these districts may be asking results in different formats than what is at present. But this kind of requests can easily be accommodated.

iii) Time taken to process transactions

Time taken to process transaction at present is less than five minutes. With more data in the system, it may get extended at the maximum to fifteen minutes

iv) Accuracy of output

Comparison with manual data has been done in order to verify that the output has been completely accurate

v) Number of delays in service delivery

Once the vehicle is traced to its FIR, one needs to communicate to the concerned police station where the FIR was registered. From there after court permission the vehicle can immediately be released to its legitimate owner.

Accessibility

This project implementation makes PSI accountable to trace the owner and hand over the vehicle to him. The progress of disposal of vehicles can easily be monitored by the district SP's during their crime meeting. Hence implementation of this project in every district makes PSI of the police station to look for the owner of the vehicle than other way round.

Single window resolution

Once this project is implemented, software generates reports in user friendly formats. One single system administrator can send email to all the concerned police stations from where vehicle was stolen and in which police station it is lying unclaimed. Same system administrator can also be given username and password for website vahan.nic.in so that anybody wanting any information about any vehicle can be given without approaching RTO.

Communication by email and SMS

Police stations can be intimated by emails and sms can be sent to the owner that his vehicle which was stolen is lying unclaimed in "xyz" police station so he can also follow up the court procedures personally for getting release of the vehicle done.

Web based tracking

Access to the website vahan.nic.in can be given through each police station also. For example in intranet of Police IT, one can give a link for the above mentioned website so that it can be accessed from police station itself. If that is cumbersome then it can be done at least through District Control Room.

User convenience

- SMS: It can be used to intimate the owner that his vehicle has been traced and it is lying unclaimed in 'xyz' police station.
- Completeness of information provided to the users: When the user approaches the police station he will be intimated about the court procedure for release of the vehicle.
- Accessibility (Time Window): Police Stations are accessible round the clock.
- Distance required to travel to Access Points is not much
- Facility for online/offline download and online submission of forms is also not required
- Status tracking will be done by the SHO for the user to know whether the vehicle that was stolen in his jurisdiction has been recovered by any other police station

Appropriateness of context and degree of localization

- The police stations will get cleaner.
- Returning of vehicle to the legitimate owner will enhance police image.
- It will get reflected as property recovery in police records.
- Sentry and SHO in stations will become more accountable towards unclaimed vehicles lying in the police stations

Hence, this project is very much appropriate in its context in times when people demand more professional approach from government officials. It will be a very big step in improving appearance of Police Station Premises and hence the police image.

Cost effectiveness

This project is very cost effective. The manpower available in District Crime Record Bureau and computer section is sufficient to coordinate and monitor progress of this work. Hence no additional manpower is required. The data collection at police station level can be done by the sentry who is officially guarding all the government property in the police station premises. One computer with internet or intranet connection is sufficient for data handling. Even for the districts that do not have computers in each police station, data can be collected manually and sent to SP office where entries can be made in a computer. Daily entry of arrival and dispatch of the vehicles from the police stations premises is good enough for data generation. This job can be done by sentry. Any vehicle lying in the police station premises for more than one month can be considered as unclaimed because as per new guidelines owner of the vehicle can get their vehicles released from police stations by submitting an indemnity bond. For station level entry of unclaimed vehicle, time required for noting down registration number, engine number, chassis number, make, model, color etc. takes only 15 minutes and uploading the same in the system another fifteen minutes maximum for one vehicle. Stolen vehicle database can be generated real time or can be updated on monthly basis. It will take hardly two hours once in a month. Hence this project has practically zero cost and man hour requirement is also minimal but the output is very big.

Number of users and services

Number of FIR traced for unclaimed vehicles: - **494 & counting**

Number of vehicles returned to the police stations to hand over to owner: - **121 & Counting**

Number of vehicles intimation given to insurance companies: - **116 & counting**

Impact on stakeholders

Impact

The biggest benefit is that the police station premises have started getting cleaner. The people getting back their vehicles have started appreciating the work of the police department. By returning the vehicles to the legitimate owners' officers are saving those vehicles from getting rusted and wasted.

1. Service Access points: Police station
2. Service charges paid by user: Nil
3. Travel cost: Up to police station.
4. Indirect cost incurred by user: - Nil
5. Comprehensiveness of service/information provided: -
 - a. FIR of the vehicle
 - b. Stolen vehicles of the entire state
 - c. Unclaimed vehicles details
 - d. Access to all RTO database
6. Distance required to travel: - Up To police station
7. Mode of service delivery: - as per procedure
8. Citizen charter (time to deliver the service): - depends on how fast that stolen vehicle is recovered in some police station.
9. Green e-Governance (power & paper consumption, disposal of e-Waste etc.): -Power consumption for one computer per station and approximately two papers per vehicle.
10. revenue collection: - Nil
11. Capacity Building (No. Of persons trained):- In Mandya all PSI, CPI and DSP were trained about use of this program. Four Hours training in one day sufficient

Value delivered

1. To organization

Number of FIR traced shows the potential as to how many vehicles can be easily returned back to the owners. Once stolen vehicle is returned to the owner, he will be grateful towards the police department. For many vehicles, owners claim insurance and hence these vehicles never come to take back vehicle. Such vehicles can be returned to the insurance companies as they become the legitimate owner of the vehicle. After returning these vehicles, police stations becomes cleaner and hence appear to be more people friendly as compared to earlier gloomy looks.

2. To citizen

121 owners are in process of getting their vehicles and remaining owners will get it soon.

3. Other stakeholders

SHO and senior police officers will become more attentive towards vehicles lying in the police stations. At present the common perception is that vehicles have been like this for years, so why should police change it. But with rising land constraints, systematic disposal of the vehicles is the key to get more empty space in the police station premises.

Sustainability

Technology Used: - It is a simple data matching software hence in any likelihood it should not be a problem.

Security of information shared: Digital encryption is not needed. The project has been designed for the worst case and also for different varieties of input provided by the police station data up gradation staff. The project is simple, secure, portable, scalable, reliable, robust, platform-independent, dynamic and distributed. User privacy is provided by giving standard user name and password. The interface is simple and user with basic computer data entry knowledge could use our project. The system admin has trained all the users of Mandya district police stations to this platform in systematic manner.

Scope of revenue generation: - Here the police are tracing the stolen vehicles and returning back to the legitimate owner. Hence, there is no scope of revenue generation.

Annexures

1. Stakeholder's consultations

In this project the stakeholders are

1. The person whose vehicle has been stolen
2. The SHO of police station.

Feedback was taken from both as to what are their expectations. The person whose vehicle has been stolen said that police should detect it and hand it over to him at earliest. Many PSI and PI who were consulted said that RTO takes lots of time to give the details of RC book. If that time is reduced it can really help to dispose the vehicles at a faster pace

Comparative Analysis of earlier Vs new system

Earlier System: -

- a) No attention of sentry and SHO towards unclaimed vehicles.
- b) Taking it for granted that these vehicles will remain there for eternity.
- c) Mischief of removing battery, indicator, tyre etc. happening in police stations.
- d) Legitimate owners remained away from their own vehicles.
- e) No matching of unclaimed vehicles of the police stations with stolen vehicles database of the entire state.

New System: -

- a) Organized way of recording unclaimed vehicles in each police station and maintaining that database.
- b) Organized way of maintaining stolen vehicle database of the entire state and updating it every month.
- c) Organized way of matching these above mentioned two databases to trace unclaimed vehicle to its FIR.
- d) For the vehicles for which FIR cannot be traced, the owner details can be traced by website vahan.nic.in
- e) Sentry and SHO become accountable for each and every vehicle in the police station premises.
- f) Station premises are getting cleaner and legitimate owners are getting back their vehicles.

Change Management

Proper briefing and communication is very essential for success of this project. First government explained to officers that what are the benefits of new system and how it will improve police image followed by technical nuances of the work. Then government asked the officers to repeat the same with their police station staff who need to be involved in the data collection and recording work. It needs a bit of hard work to motivate the ground staff.

Outcome/Benefit: Station premises are becoming cleaner and vehicles owners are also a happy lot for getting back their stolen vehicle. There is no change involved in legal system or in rules and regulations.