ELIMINATING THE MANUAL INTERFERENCE IN DRIVING LICENSE TEST

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ABSTRACT
The issue of Driving License is a major problem in developing countries mainly because of problems like lack of adequate manpower, infrastructure, testing facilities, backed by the weaknesses in the governance like lack of transparency, accountability, consistency etc. resulting corruption. The citizen’s willingness to pay for getting the driving License causes distortions in the system. In India major problem in the driving license system is the private intermediaries (“agents”) who will try to break the system to cash it. In order to avoid and arrest the malpractices of the corruption the use of technology and the software are used now. This paper highlights how the new system eliminates the human interference and the subjectivity in the driving license testing system at all levels. A robust system is developed right from submitting application, getting appointment or modification of appointments for appearing Learning License and for the Driving License. A computer based Learning License Testing system and the Innovative Driving Test System – IDTS is developed to test the candidates in two levels as per the Indian M.V.Act. 1989. The IDTS uses the RFID technology procured for $50,000 and which does not burden the administration and the candidate. The service charge is approximately $3 for each candidate. The ROI in terms of days is 170 when the Driving Licenses tested per day are 100.

The paper also touches the modes of education to the driving license applicants about learning license test, drivers skill test and how it evaluates the candidate, finally after the test the evaluation sheet with the path driven by the candidate and marks scored with pass/fail result printout signed by the licensing authority will be given to the candidate which shows the absolute transparency in entire driving licensing testing system.

In India, the Motor Vehicle Act of 1988 and The Central Motor Vehicle Rules, 1989 and its successive amendments specify the national official driving licensing process. State governments are responsible for administering this act and for conducting the tests for driving licenses and issuing them. Day by day the vehicle population is increasing rapidly and there is a tremendous
demand for the driving licenses. In the state of Andhra Pradesh every day approximately 9000 learning licenses and 3000 driving licenses are being issued from 123 transport department offices.

Learning License is a temporary license issued for a 6 months period after conducting a theory test. This enables the candidate to learn the driving of the vehicle under the supervision of an experienced driver and while learning he has to display an “L” board in front and rear of the vehicle.

Driving License is a permanent license issued after conducting driving test on the class of vehicle for which the candidate applied.

OBJECTIVES OF THE STUDY:
Candidates fell prey for gimmicks of private intermediaries (“agents”) and pay huge money for obtaining the Learning License and the Driving License from obtaining and filling of an application to till they get the driving license. There is a lot of subjectivity in verifying the documents like address proof, date of birth and conducting the tests. Thus the system is redundant with lot of subjectivity paving the scope for mistakes, manipulations, malpractices and corruption and the candidates are paying huge money to the agents to get the work done easily.

The Automated process of driving licensing system provides all necessary information on the website and they can apply online. If internet service is not available, candidates can approach at any e-sewa or mee-sewa counters to apply and thus eliminated the agents’ role in filling and submitting the application. It also reduces the work of office staff in entering the applicant’s details in system at transport department offices. Later conducting computerised Learners Licence test and Innovative Driving Test System for permanent driving license also does not have any human decision to pass or fail the candidate, thus this system is completely avoided the role of subjectivity of the office staff.

Keeping in view of paucity of manpower, infrastructure and illegal methods for getting the driving license, there is a need of automated test system by using the technology. The automated system not only helps in conducting tests in fair and transparent manner, but it also streamlines the submitting of applications by applicants to appearing these tests.

The steps and the process of automatic driving test is as below
1. Applying for Learners’ License Test and Booking a slot through the internet, e-seva, APOnline and at RTA offices
2. Practicing and mock tests for Learners’ License Test
3. Learners License Test
4. Applying for Driver’s License Test and booking a slot
5. Appearing for DL test
1 APPLYING FOR LEARNERS’ LICENSE TEST AND BOOKING A SLOT THROUGH THE INTERNET, E-SEVA, APONLINE AND AT RTA OFFICES

A candidate can apply and book a slot for the learner’s license at his convenient nearest place to him in the jurisdiction in which candidate resides. For applicants convenience facility to apply and book a slot lot of service providers are provided. The applicant can book a slot across the state at any centre and these centers spread in rural and urban areas; there are 500 e-seva centers, 5000 AP Online centers and 123 RTO/MVI (Regional Transport Office/Motor Vehicle Inspector) offices. Due to the availability of the centers in nook and corner of the state, candidates approaching to middlemen is avoided and their travelling time also reduced to go to the nearest city to book a slot. With this provision the candidate can go to the RTO office for the test on the date and time he selected during the slot booking. After booking the candidate can take the print out of the slot booking and it also gives the details for the practice and mock test. Printed books with the total question bank with answers are available for sale at the offices for 20 cents (Ten Rupees), which is affordable by a common man. Candidate can practice section wise after that he can go for mock tests.

2 PRACTICE AND MOCK TESTS FOR LEARNERS’ LICENSE TEST:

Every candidate is not familiar with the use of computers, hence a practice and mock test is provided on the transport department’s website www.aptransport.org, so that candidate can practice, test his competence and become familiar with the test. With this the candidate goes through the questions and learns the road rules, road signs. This facility improves the candidates knowledge on road rules, road signs and safe driving practices and also the system is transparent avoids the candidates approaching private intermediaries.

2.1 Practice test:

Practice test is divided in to 9 sections shown below table, these tests are designed on the basis of topics in which the learners’ license test is carried out at the RTO offices and candidate has option to select any topic and practice till he reaches perfection. Each Practice session will have 20 questions from the topic and need to complete within 10 minutes. Each time the answer series will jumble to make the candidate to read all the answers and select the correct one. At the end of the test all the questions and the answers selected by the candidate along with correct or wrong will be displayed along with the correct answer.
Table 1

<table>
<thead>
<tr>
<th>Test Number</th>
<th>Test Name</th>
<th>No. of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>T001</td>
<td>Safe Driving Practices</td>
<td>157</td>
</tr>
<tr>
<td>T002</td>
<td>Road Signs, Markings &amp; Traffic Signals</td>
<td>78</td>
</tr>
<tr>
<td>T003</td>
<td>Road Rules</td>
<td>94</td>
</tr>
<tr>
<td>T004</td>
<td>Vehicle Controls &amp; Mechanisms</td>
<td>16</td>
</tr>
<tr>
<td>T005</td>
<td>Maintenance and Fuel Conservation</td>
<td>91</td>
</tr>
<tr>
<td>T006</td>
<td>Handling Emergency &amp; Difficult Conditions</td>
<td>137</td>
</tr>
<tr>
<td>T007</td>
<td>Legal Provisions &amp; M.V. Act.</td>
<td>116</td>
</tr>
<tr>
<td>T008</td>
<td>Accidents and First Aid</td>
<td>15</td>
</tr>
<tr>
<td>T009</td>
<td>Attitude, Alcohol &amp; Driving</td>
<td>123</td>
</tr>
</tbody>
</table>

2.2 Mock Test:
Mock test is a similar test which the candidate needs to appear at the RTO office. Each mock test will have 20 questions consists of specified number of randomly selected questions from 9 topics practiced in practice test. The sequence of the options for selection of answers will change in the original test. You need to complete this test within 10 minutes and pass marks are 12 i.e. 60 percentage.

3 LEARNERS LICENSE TEST:
To appear to the learner’s license test candidate has to go to the office on the date and time booked by him and he’ll approach the counter and produces the date of birth and address proof certificate for verification. After verification of the documents by the clerk at the counter, candidate is given a receipt which contains a reference number, then goes for photo and biometrics capturing. Candidate appears before the MVI/AMVI (Motor Vehicles Inspector/Assistant Motor Vehicles Inspector) for physical verification and online test. Candidate enters the reference number, date of birth and swipes the thumb, system verifies the details and the Learners License test starts. The test is of 10 minutes with 20 marks covering all the subjects mentioned in table 1. The following flow chart (Chart -1) shows the total learning license process. Entire office is covered by the CCTV cameras installed at each section and being monitored by the head of the office.
Applicant applies for Learners License through internet/e-seva/mee-sewa/RTO/MVI offices of their jurisdiction and selects his own choice of date from the available dates and pays the fees.

Applicant can practice on online on aptransport.org by going through Learners License practice and mock tests.

If address and DOB are not correct application rejected

Applicant submits address proof and Date of Birth at office for verification

If address and DOB are not correct application rejected

The candidate is allowed for Photograph and the biometric capture

Candidate appears for the Learners License test on the computer.

Fails appear for retest after paying retest fee

If Pass secures 12 out of 20

Learners License print out is given to the candidate by AMVI/MVI. Applicant can practice and appear for the driving test after 30 days and before 180 days

Chart 1: Learners License Test
4 APPLYING FOR DRIVER’S LICENSE TEST AND BOOKING A SLOT:

After getting the learners license the candidate can book the slot immediately for driver’s license test selecting the slot after 30 days (system will allow only after 30 days from the issuance of the learners license as per CMVR 15 of The Central Motor Vehicle Rules - 1989) through internet/e-seva/mee-sewa/RTO/MVI offices in which the jurisdiction the candidate and selects his own choice of date from available dates and pay the fees through the internet/e-seva/mee-sewa/RTO/MVI office. At the time of booking the candidate can take a printout of the test procedure and how his driving is being evaluated during the test (Pass fail criterion shown in table -2 and table - 3). Candidate practices the driving with accompanying by an instructor holding an effective driving license to drive the vehicle and such instructor is sitting in such a position as to control or stop the vehicle (As per Rule – 3 (b) of the CMVR of The Central Motor Vehicle Rules 1989). After 30 days candidate will attend the test on the date and time of slot booked by him at the driving track selected by the candidate at the time of slot booking. A plan of the typical driving track is shown in the fig -1 and the driving license system flow chart is shown in chart-2.

Table 2: Pass / Fail criterion matrix

<table>
<thead>
<tr>
<th>Section</th>
<th>Marks Allotted</th>
<th>Standard Directions followed</th>
<th>Forward and Reverse taken</th>
<th>Time in each section (Seconds)</th>
<th>Average Deviation from Standard Track</th>
<th>Partly Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>35</td>
<td>Yes</td>
<td>No</td>
<td>F= NA; R &lt;= 2</td>
<td>&lt; 100; &gt; 100</td>
<td>Fail</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt; 1 mt; &gt; 1 mt</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.75; 0</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>35</td>
<td>Yes</td>
<td>No</td>
<td>F&lt;= 5; R &lt;= 4</td>
<td>&lt; 160; &gt; 160</td>
<td>Fail</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15; 0</td>
<td></td>
</tr>
<tr>
<td>5 Point</td>
<td>25</td>
<td>Yes</td>
<td>No</td>
<td>F= 5; R &lt;= 5</td>
<td>&lt; 160; &gt; 160</td>
<td>Fail</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10; 0</td>
<td></td>
</tr>
<tr>
<td>Outer</td>
<td>5</td>
<td>Yes</td>
<td>No</td>
<td>F &gt; 5; R &gt; 5</td>
<td>&lt; 160; &gt; 160</td>
<td>Fail</td>
</tr>
<tr>
<td>Track</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10; 0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td>420</td>
<td></td>
</tr>
</tbody>
</table>

F: Forward Direction, R: Reverse Direction
Fig-1: Layout of the driving track
Applicant applies for Driver’s License Test through internet/e-seva/mee-sewa/RTO/MVI offices of their jurisdiction and selects his own choice of date from available dates and pays the fees. He can take the printout of appointment and test procedure i.e. evaluation sheet.

Applicant practices driving for minimum 30 days and becomes ready for driving test

Applicant reports for the driving test one hour before and submits the appointment letter and

If fails evaluation sheet printout is given to the candidate and appear for retest after paying retest fee. No slot booking required

Candidate appears for the Driver License test on the driving track

If Pass evaluation sheet printout is given to the candidate

Driver’s License card print out is printed and sent by Speed Post and reaches the candidate within 7 days

Chart 2: Driver’s License Test
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**Table 3: Driving Skill Test Pass / Fail criterion for LMV Vehicles**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8 – TEST</td>
<td>Marks allotted : 35</td>
</tr>
<tr>
<td></td>
<td>a) <strong>Standard Directions:</strong> In section 8 the standard direction is shown in brown color line with arrow shown in figure ‘A’ if this direction is followed, 8.75 marks will be given by the system.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) <strong>Forward &amp; Reverses:</strong> Maximum number of reverses in eight test allowed are 2, if performed test within limit 8.75 marks will be given by the system.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) <strong>Test Duration:</strong> Maximum time allotted for the 8 section is 100 seconds, if performed test within the given time and standard directions are followed 8.75 marks will be given by the system.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) <strong>Standard Deviations:</strong> The Standard track is shown in brown color line. The system will compare applicant driving pattern shown in with in black color line with standard track (expected driving pattern). After completing the test, system will compute standard deviation. If overall average deviation is within the limit i.e. less than 1.1 meters, the system will award 8.75 marks.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>H – TEST</td>
<td>Marks allotted : 35</td>
</tr>
<tr>
<td></td>
<td>a) <strong>Standard Directions:</strong> In section H the standard direction is shown in brown color line with arrow shown in figure ‘A’. If proper direction is followed, i.e. 1 to 2 and then 3 to 4, 15 marks will be given by the system.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) <strong>Forward &amp; Reverses:</strong> Maximum numbers of Forwards in ‘H Test’ allowed are five and four reverses. If performed test within limits and standard direction followed 10 marks will be given by the system.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) <strong>Test Duration:</strong> Maximum time allotted for ‘H-Test’ is 160 seconds; if performed test within time and standard direction followed 10 marks will be given by the system.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Five Point Turn Test</td>
<td>Marks allotted : 25</td>
</tr>
<tr>
<td></td>
<td>a) <strong>Standard Directions:</strong> Applicant has to enter in ‘Five Point Track’ in forward direction and come out in forward direction then 10 marks will be given.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) <strong>Forward &amp; Reverses:</strong> Maximum numbers of 5 forwards and 5 reverses are allowed as well proper direction followed then 10 marks will be given.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) <strong>Test Duration:</strong> Applicant has to complete the test within 160 seconds then 5 marks will be given.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Outer Track</td>
<td>Marks allotted : 05</td>
</tr>
<tr>
<td></td>
<td>Applicant has to enter &amp; exit the test track in forward direction.</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** 1. Kerb hitting will be treated has failed in the test and no result will be computed for the failed person.
2. Applicant will be considered as failed if the vehicle fails due to mechanical or any other reason. It is the responsibility of the Applicant to bring the vehicle in good condition.

5 APPEARING FOR DL TEST:
Candidate approaches the testing track on the specified date and time for taking the driving test and presents the receipt of the slot booked at the counter and takes receipt. Then the candidate approaches with receipt at the cabin of the test track with his vehicle for the test. An attendant keeps the reader on the vehicle which reads the RFID tags and sends to the receiver in the cabin, which in turn connected to the system. MVI/AMVI enters the receipt number in the system and click on the start, then communication between the reader and the receiver is connected. As the candidate drives through the track the path is drawn on the system screen shown in the fig-2 in block line showing arrows in the direction of travel of the vehicle. The driving is evaluated on the basis of the pass-fail criterion given in the tables 2 and 3. Finally, the system gives the result; candidate has to secure 80 per cent of the marks to pass the test. The test result pass/fail including the figure of path driven, marks scored in each section by the candidate is printed on A4 sheet, signed by the testing authority and given to the candidate. For passed candidates, the license is printed in the printer room as per sequence of the application number, delivered to the candidates address by speed post next day and reaches within 7 days. EMS number is sent to the applicants’ mobile number, so that he can track his driving license delivery by speed post.

![Fig-2: Test result printout](image)

This system is useful where the integrity of the driving test is being questioned and influenced by different illegal practices to get the driving license and it can be further improved by adding
other test factors in the driving test. The present system uses the RFID technology in tracing the vehicle on the driving test track, further it can be developed by using other technologies like GPRS and image processing and these are economical and less maintenance.

6 STRENGTHS OF THE AUTOMATED DRIVING LICENSING SYSTEM:
1. Candidates register themselves on online with zero cost for application and no interference of the agents.
2. Online learners licence test improves the knowledge of the candidates in road rules and also the test is being conducted in a transparent way.
3. The appointment system for the Learner's license and Driving License helps the candidates by avoiding standing in serpentine lines for waiting their turn, instead they can come few mins before and complete their test. It also helps the transport department officials to plan their work, thus a qualitative service can be provided to the citizens.
4. Automated Driving License test system eliminates the bias and manual interference with transparency.
5. As there is no manual decision is involved, it avoids the agents, thus the corruptive practices are eliminated.

7 WEAKNESSES:
1. Illiterates may face the problem of answering on the computer screen, even though they have been provided with the hearing facility with extra time.
2. Accessibility of internet to the candidates.

8 CONCLUSIONS:
1. Cost of application is zeroed down and usage of paper is eliminated.
2. Manual decision is totally eliminated, thus transparency is increased.
3. Illegal or unauthorised expenses to the applicants is eliminated.
4. Time log is reduced significantly by appointment system.
5. A greater transparency is achieved.
6. Consistency, reliability and quality of work is significantly improved.
7. Staff requirement is significantly minimised.
8. Trust and confidence is created in the minds of the candidates.
9. Hassle free and robust system for eliminating corruption.

REFERENCES:
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2. Test result print out, Driving testing track, Uppal, Ranga Reddy District, A.P. Transport Department.