

Report on the
Customized Driver Training Program titled,
“Defensive Driving and Driver Assistance through Artificial Intelligence”
Conducted jointly by
CSIR-Central Road Research Institute &
Ashok Leyland Institute for Driving Training & Research (ALIDTR)
as part of
Project: iRASTE: Intelligent Solutions for Road Safety through
Technology and Engineering

Project: iRASTE is a unique collaborative initiative between the government, industry and academia towards advancing road safety inaugurated by **Hon'ble Minister of Road Transport and Highways of India, Shri Nitin Gadkari** on 11th September 2021 aimed at the reduction of fatalities up to 50% in Nagpur city by 2023. Intel India, INAI, International Institute of Information Technology-Hyderabad (IIIT-H), CSIR - Central Road Research Institute (CSIR - CRRI) New Delhi and Mahindra & Mahindra are the consortium partners whereas Nagpur Municipal Corporation (NMC) is the principle local agency overseeing its implementation.

Through an innovative and holistic road safety framework, the project focuses on three crucial areas: vehicle safety, mobility analysis and road infrastructure safety. As Driver Awareness and training is a very important part of the vehicle safety vector, the consortium partners of **Project: iRASTE** in partnership with Nagpur Municipal Corporation (NMC) conducted a driver training program titled, **“Defensive Driving and Driver Assistance through Artificial Intelligence”**, specifically addressing the needs of Commercial Vehicles (*i.e. Bus and taxi*) drivers to promote Defensive Driving Practices amongst the drivers.



The first of this customized training program was conducted by the consortium partner, CSIR - CRRI, New Delhi coordinated by **Dr. Mukti Advani**, Principal Scientist, and the session was held between 21st to 26th February, 2022. The training program was organized by availing the services of Ashok Leyland Institute for Driver Training & Research (ALIDTR) wherein 345 drivers were trained and this initiative is expected to

cover ~1000 drivers over a period of 2 years.

Overview of the Daily Session

On each day, about 60 to 70 drivers were imparted the above training program who were chosen from M/s. Hansa City Bus Service Limited, M/s. Travel Time Private Limited, M/s. R.K. City Private Limited, M/s. Oletra Green Tech. and M/s. Mahesh Travels.

The session commenced each day with a detailed interactive presentation on psycho-physical traits and road rage aspects covered by **Dr. Neelima Chakrabarty** of CSIR - CRRI.



This was followed by coverage on the basics of defensive training and best safe driving practices covered by the lead faculty of ALIDTR, **Mr. A.R. Pathe** on each of the days.

Thereafter, the usefulness of the alerts generated by ADAS was imparted by **Mr. Rajeev R** and his team from Intel India on each of the days. It was informed that such alerts can help the drivers to be vigilant and thus help to reduce likelihood of the incidence of road crashes and more importantly can protect Vulnerable Road Users (*VRUs*), like pedestrians, cyclists and motorized two wheelers. Further, it was informed that ADAS also promotes defensive driving behaviors based on Collision Avoidance System (CAS) alerts related to Lane discipline, Speed limit adherence and Headway Monitoring alerts through pictorial and video demonstration.



Moreover, feedback was also collected from drivers on the experience of ADAS devices installed so far on the 50 odd NMC buses during the closing session on each day of the event. Based on the pre and post interactive sessions with the drivers, their feedback is also collected by ALIDIR with respect to their understanding of road safety, the utility of the ADAS devices in driving, issues if any by them in understanding the alerts and scope for its betterment.

The program concluded with an oath taken (*Oath Copy enclosed as Annexure-1*) by the drivers to adopt the safe driving practices followed by the distribution of the certificates by the Chief Guest / Guest of Honor invited on each of the six days. Further, during on each of the above days, selected sample of drivers were subjected to Vienna Test (*about 150 nos.*) to understand the level of the reaction of the drivers which would be appropriately used to design the Collision Avoidance System (*CAS*) more efficiently.



The inauguration of the program on the first day was done by **Mr.Nirmal Parmar** of Mahindra and Mahindra (*M & M*) and the certificate distribution was done by the CSIR - CRRI faculty as well as M & M at the end of Day-1.



The closing Ceremony of the 2nd-day program was graced by **Prof. Pramod M. Padole**, Director, Visvesvaraya National Institute of Technology (*VNIT*) who appreciated the research initiative undertaken by the consortium to improve road safety on the road network of Nagpur and he extend his wishes for its success.



Dr. Roop Kumar M. Belsare, Deputy Regional Transport Officer, (*Dy. RTO*), Civil Lines, Nagpur addressed the drivers on the third day and highlighted the importance of safe driving. He further emphasized on “No Mobile while Mobile” during his interaction with the drivers.

Closing ceremony of Day-3 was braced by **Shri. Rajeev Agarwal**, Regional Officer, National Highways Authority of India (*NHAI*) who appreciated the use of technology in improving safety. He reinforced that taking shortcuts while driving creates many unsafe zones and advised drivers refrain for adopting risky driving practices.



Closing ceremony of Day-4 was graced by **Mr. Jitendra Kukde**, Transport Committee Chairman, NMC and **Mr. Bala Saheb Theng**, Technical Adviser, Ministry of Road Transport and Highways (*MoRT&H*), Government of India. Mr. Kukde lauded the efforts of the consortium and asked the drivers to be vigilant during driving and also to obey the CAS alerts generated by the ADAS which can help to enhance road safety on the roads of Nagpur.



Mr. Theng interacted with drivers prior to the certification distribution and sought the experience of couple of drivers on the ADAS devices installed on about 50 NMC buses as of today. The drivers gave their positive feedback in terms of alerts helped in providing safe driving experience coupled with the minor issues faced. Mr. Theng advised the consortium members to consider their concerns appropriately while installing the CAS devices in the 200 additional fleet in the

coming months.

Dr. Vikas Mahatme, Rajya Sabha Member & Chairman, District Road Safety Committee



attended the final day of the session and he was pleased to learn that 345 drivers have undergone the above training program. He asked to take an exhaustive review of the level of adherence to the CAS by the drivers after six-month period of CAS installation. Dr. Mahatme hoped that the coordinated efforts of the **Project: iRASTE** team under the road infrastructure vector, mobility analysis and improvement of driver behavior will help to reduce the incidents of road crashes and road fatalities by 50 % in Nagpur in 2023 which is mandated by Sh. Nitin Gadkari during launch event of the project on 11th September, 2021.

Also, **Mr.Chandrashekar Mohite** graced the occasion as the **Guest of Honor** on Day-6 and highlighted the role of speed management towards in enhancing safety and hence he felt that CAS can play role in controlling the speed of vehicles. He also interacted with drivers to get their feedback on installed devices. One of the drivers mentioned that device functioning is easy to understand and helps in taking timely action.



The above 6-day event had some media coverage which is given in Annexure-II.

Way Forward:

Addressing known Black Spots *i.e. Road infrastructure safety vector in Nagpur* will be the upcoming milestone for Project: iRASTE in a phased manner. Furthermore, Project iRASTE is also identifying and addressing Grey Spots *i.e risky spots, not classified as Black spots yet*. To accomplish the above, continuous monitoring through ADS by leveraging technology is enabling Project iRASTE to map risky road stretches. It is expected that these initiatives will not only improve safety at the identified / known Black spot locations and but also proactively identify risky spots (*Grey Spots*) which is detailed above that have high chances of turning into black spots if timely improvement is not taken up. Project iRASTE thus expects to pioneer road safety interventions based on leading indicators, instead of Lagging Road risk indicators like road crash data which is basically reactive in nature.



Photo 1: CSIR – CRRI team conducting Vienna Test for Bus Drivers



Photo 2: Bus Drivers attempting Pre-Assessment Test



Photo 3: Drivers receiving Certificate from Dr.Neelima Chakrabarty



Photo 4: Drivers receiving Certificate from Mr.Nirmal Parmar



Photo 5: Driver receiving Certificate from Mr.A.R.Pathe



Photo 6: Group photo

Day 1: Glimpse



Photo 7: Moh. Akil conducting Vienna Test for Bus Drivers

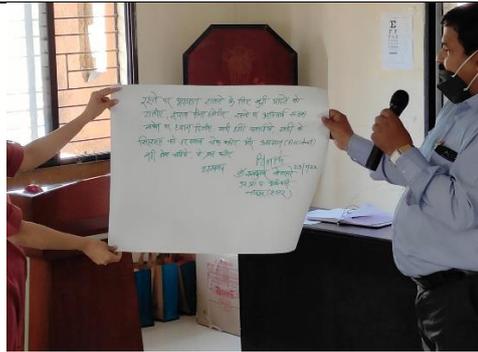


Photo 8: Suggestion to Drivers by Dr. Belsare

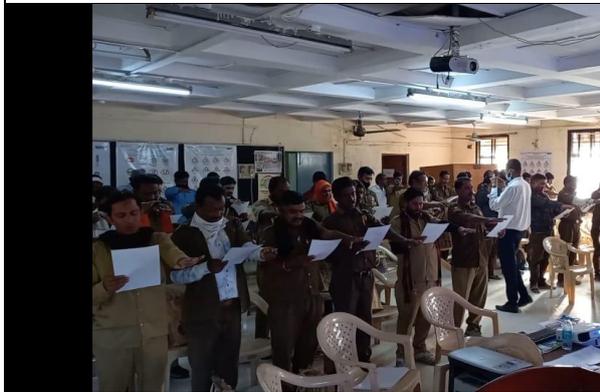


Photo 9: Drivers taking Pledge for Road Safety



Photo 10: Group Activities among Team of Drivers



Photo 11: Driver receiving Certificate from Mr. A.R. Pathe



Photo 12: Group Photo

Day 2: Glimpse



Photo 13: Team members



Photo 14: Venue for Training Program



Photo 15: Drivers taking Pledge to adhere Safe Driving Practices



Photo 16: Group Activities among Team of Drivers



Photo 17: Driver receiving Certificate from Mr.Rajeev Aggarwal



Photo 18: Group Photo

Day 3: Glimpse



Photo 19: Sh. Jitendra Kukde graced the Day 4 Closing Ceremony

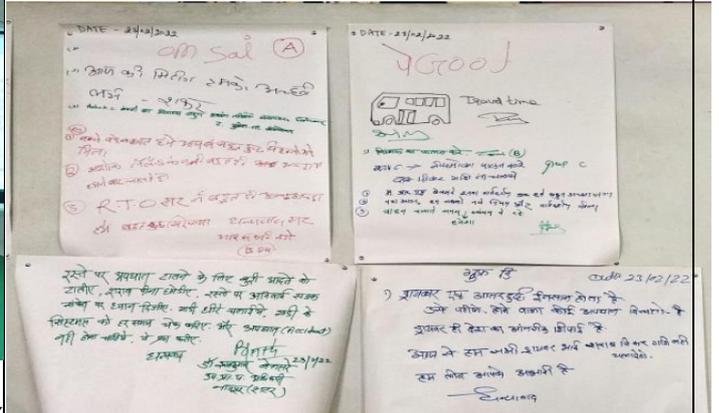


Photo 20: Feedback from Drivers



Photo 21: Drivers at the end of Day-4 Program with the Chief Guest



Photo 22: Drivers taking Oath at the end of Training Program for adhering Safe Driving Practices.



Photo 23: Driver narrating his experience on ADAS to the Chief Guests



Photo 24: Demonstration on Emergency Transfer to Hospitals

Day 4: Glimpse



Photo 25: Mr. Konala Varma presenting the certificate to Driver



Photo 26: Dr.S.Velmurugan presenting the certificate to Driver



Photo 27: Dr.S.Velmurugan addressing Drivers on safe driving practices with emphasis seat belt / helmet usage while driving private vehicles



Photo 28: Demonstration on Emergency Transfer to Hospitals



Photo 29: Mr.Pathe Announcing names for Certificate Awards



Photo 30: Group Photo

Day 5: Glimpse



Photo 31: Dr.P.K.Jain addressing issues related to Road Safety



Photo 32: Guests on Dias for last day of Training Program



Photo 33: Shri. Mahatme Ji addressing the Participants



Photo 34: iRASTE Team with Chief Guest and Guest of Honour



Photo 35: Ms.Kamini Gupta, CSIR – CRRI coordinating Stage Activities



Photo 36: Mr.Sushil Srivastava, Head, Driver Training Research, ALIDTR addressing the gathering

Day 6: Glimpse

Annexure-I: Oath
Project
iRASTE

Intelligent Solutions for Road Safety through Technology & Engineering

सड़क सुरक्षा शपथ

1. मैं सड़क सुरक्षा के लिए विनिर्दिष्ट गति सीमाओं को ध्यान में रखकर गाड़ी चलाऊंगा/गी तथा गलत दिशा में ड्राइविंग का सहारा नहीं लूंगा/गी, पैदल यात्रियों की जरूरतों का सम्मान करूंगा एवं सभी प्रकार के सड़क यातायात संकेतों, सड़क चिहनों और यातायात संकेतों का पालन करूंगा/गी ।
2. मैं वाहन चलाते समय 'नो मोबाइल' और 'नो टेक्सिंग' के सिद्धांत का पालन करूंगा/गी ।
3. मैं शराब का सेवन करके वाहन नहीं चलाऊंगा/गी ।
4. मैं भले ही पीछे की सीट पर बैठा/ठी हूँ, अपनी सीट बेल्ट को सदैव बाँध कर रखूंगा/गी ।
5. मैं, दुपहिया वाहन चलाते समय हमेशा आईएसआई हेलमेट पहनूंगा/गी चाहे मैं पीछे की सीट पर बैठा/ठी हूँ ।
6. संक्षेप में, प्रतिज्ञा करता/ती हूँ कि मैं हमेशा मोटर वाहन अधिनियम के नियमों का पालन करूंगा/गी और इस प्रकार सड़क सुरक्षा बढ़ाने की दिशा में अपना योगदान दूंगा/गी ।



Annexure-II: Media Coverage



CSIR CRRI on Twitter

"iRASTE conducts a training program for Bus Drivers. On the 1st day, Mr. Nirmal Parmar from @Mahindra_Auto inaugurated the event and 60 drivers participated in very interactive sessions conducted by @CSIRCRRRI & @ALIndiaOfficial @CSIR_IND @inai_ai @ngpnmc@IntelIndia@MORTHIndia"

twitter.com

<https://twitter.com/CSIRCRRRI/status/1496541051154280450?t=pXjjouruhy4FHd0yyJMITKg&s=08>



inai.ai
@inai_ai



Project iRASTE, in partnership with @ngpnmc, successfully concluded driver training program titled "Defensive Driving and Driver Assistance through AI". The program was attended by 350 commercial drivers in Nagpur. @iiit_hyderabad @intelindia @MahindraRise @CSIRCRRRI @IHUB_Data



70% Aapli Bus drivers not aware of basic driving skills | Nagpur
News - Times of India

Nagpur: Over 70% Aapli Bus drivers are not aware of some of the basic
m.timesofindia.com

https://m.timesofindia.com/city/nagpur/70-aapli-bus-drivers-not-aware-of-basic-driving-skills/amp_articles/89878779.cms

लोकमत समाचार

345 बस ड्राइवरों को दिया प्रशिक्षण



डॉ. एस. वेलमुरुगन, चंद्रशेखर मोहिते एवं अन्य अतिथियों के साथ प्रशिक्षणार्थी.

नागपुर : आरटीओ कार्यालय में बस ड्राइवरों को 21 से 26 फरवरी तक सड़क सुरक्षा संबंधी प्रशिक्षण दिया गया. सीएसआईआर-केंद्रीय सड़क अनुसंधान संस्थान (सीआरआरआई) नई दिल्ली, अंतरराष्ट्रीय सूचना प्रौद्योगिकी संस्थान (आईआईआईटी) हैदराबाद, इंटेल इंडिया, महिंद्रा एंड महिंद्रा और नागपुर महानगरपालिका के संयुक्त तत्वावधान में आई-रास्ते प्रोजेक्ट के तहत प्रशिक्षण शिविर का आयोजन किया गया. 345 बस ड्राइवरों को प्रशिक्षण और 71 को प्रमाणपत्र प्रदान किया गए. शनिवार को हुए समापन समारोह में जिला सड़क सुरक्षा समिति के उपाध्यक्ष सांसद विकास महात्मे, समिति सदस्य चंद्रशेखर मोहिते, सीएसआईआर-सीआरआरआई के मुख्य वैज्ञानिक डॉ. एस. वेलमुरुगन, अशोक लेलैंड इंस्टीट्यूट ऑफ ड्राइविंग ट्रेनिंग एंड रिसर्च के सुशीलकुमार श्रीवास्तव और डॉ. प्रकाश जैन उपस्थित थे.

Apna Nagpur
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