**News Release**  
**Date of Issue: 16 January 2008**

**POLYTECHNIC STUDENTS DEVELOP CREATIVE IDEAS FOR LAND TRANSPORT CHALLENGES**

Bluetooth based information system, predictive zebra crossing, traffic simulation model, an integrated countdown timer at traffic lights and commuter-friendly bus stops - these are some of the innovative land transport projects completed by 70 polytechnic students for the 10th Land Transport Authority (LTA) – Polytechnics Collaboration and presented on 16 January 2008.

These final year engineering students participated in the annual LTA – Polytechnics Collaboration undertaking present-day land transport challenges with the guidance of an LTA officer and their supervisors from their respective polytechnics. The aim is to provide learning opportunities for students as they undertake actual land transport engineering challenges as part of their final-year curriculum work.

This year students developed ideas to address a variety of land transport challenges such as improving bus stops, traffic lights, zebra crossings, barrier-free accessibility, a road profiling system and many more. A total of 23 projects were submitted this year. The 5 winning projects from each polytechnic were selected based on technical merit, originality and completeness of the project. The winners walked away with a cash prize of S$500 each. Please refer to Annex A for more details on the winning entries.

Group Director, Engineering, Mr Paul Fok expressed, “This is our 10th year of collaborating and I continue to be impressed with the projects which are completed in a tight period of nine months. Six of these projects over the ten years of collaboration have been implemented.”

While many of the projects by the students show promise, certain aspects of these projects developed by the students have been implemented after factors, such as durability and economic viability, have been considered as well as rigorous trials, testings and improvements on the prototypes have been conducted by LTA:

<table>
<thead>
<tr>
<th>S/No</th>
<th>Title</th>
<th>FY</th>
<th>Status</th>
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<tbody>
<tr>
<td>1.</td>
<td>Design of Motorised Track Bound Trolley</td>
<td>2000/2001</td>
<td>Initial studies were done by students and later undertaken independently by LTA to provide a concept that is implemented in CCL.</td>
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<td>2.</td>
<td>Development of a Web-Based Control System for the Contactless Smartcard Reader Writers (CSCRW)</td>
<td>2001/2002</td>
<td>Initial study on the understanding/viability of this method was done by students which led to an independent study which was done commercially.</td>
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<td>3.</td>
<td>Study of the Adequacy of Drainage System in Older Bridges and Flyovers</td>
<td>2000/2001</td>
<td>Results of the study led to LTA undertaking it as an in house project and was subsequently implemented.</td>
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<td>4.</td>
<td>Study on the Use of Raised Pavement Markers Along Roads in Singapore</td>
<td>2000/2001</td>
<td>This has been implemented at 17 junctions in Singapore.</td>
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<td>5.</td>
<td>Automatic Generation of Daily/ Weekly Reports for Geotechnical Instrumentation and Monitoring</td>
<td>2004/2005</td>
<td>The concept was implemented in LTA’s in-house system.</td>
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“Throughout the years, the LTA-Polys collaboration has been able to showcase some of the best engineering ideas by our Poly students. It proves that our Poly students are able to identify and provide ideas to make our roads and transport systems safer and more efficient. This year we hope that the ideas presented here can continue to make a difference.” Mr Fong Yew Chan, Director, School of Engineering, RP
Republic Polytechnic is hosting the LTA-Polytechnics Collaboration 2008 at its Woodlands campus for the second year running. It also hosted the 2007 collaboration.

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**Annex A**

**ABSTRACTS OF THE WINNING PROJECTS FOR THE 10TH LAND TRANSPORT AUTHORITY - POLYTECHNICS COLLABORATION**

**NANYANG POLYTECHNIC**  
An Innovative Information System at MRT Stations  
The objective of this project is to develop an innovative information system to better assist or inform the physically-challenged commuters at MRT stations.

This information system will disseminate essential maps, diagrams, floor-layouts, voice or text to inform, alert and guide these commuters to the nearest facilities such as lifts, toilets, entrances, exits, transit platforms and accessible walkways.

The information system will leverage on Bluetooth technology and disseminate essential information to commuters’ or care givers’ mobile phones. The system requirement is a PC-based Bluetooth broadcasting station. This system does not require any installation of software, it is compatible with different handsets, and the contents are sent fit-to-screen.

**NGEE ANN POLYTECHNIC**  
Intelligent Prediction of Pedestrian Movements at Zebra Crossing  
The objective of the project is to build an intelligent system to study the movements of pedestrians at and around the zebra crossing. With the system, light-emitting diodes (LEDs) embedded on the road will automatically flash whenever it detects that pedestrians are about to cross the zebra crossing. This gives advance warning to alert motorists to stop at the crossing.

**REPUBLIC POLYTECHNIC**  
Traffic Simulation  
The objective of this project is to develop a model for simulating traffic flow on busy roads. The site selected for study is the 4-junction Sungei Road/Rochor Road. During peak hours, there is a high volume of vehicle from Sungei Road and Jalan Besar going into Bencoolen Street.

The study will look at ways to improve the traffic condition by adjusting traffic light timings/phrasings and modifying existing road designs. The effectiveness of the solutions will be evaluated using a simulation model.

**SINGAPORE POLYTECHNIC**  
Integrated Countdown Timer at Traffic Lights  
The proposed countdown timer will be integrated with existing traffic lights such that the remaining time is displayed on the amber light LED panels. The timer will show the remaining time left before the light changes from red to green. The timer will also alert road users in advance on the changing of signal
from green to amber.

The countdown timer from red to green may help alleviate the anxiety of drivers. Stress and emotions have an effect on the way we drive. Drivers who are under stress tend to be less attentive to their surroundings. For instance, drivers filled with anger have a tendency to speed out of rage. Under such conditions, the affected drivers will pose a danger to other road users.

The advance warning of light change from green to amber can reduce the number of drivers trying to beat the red light. It can help to improve drivers' judgment as they approach a traffic light. A PIC18 microchip is used as the timer control. The amber LED panel will be redesigned to hold a 7-segment LED display which will display the numbers.

TEMASEK POLYTECHNIC
Commuter-Friendly Bus Stops

The objective of this project is to design a bus stop that is flexible and easy to assemble without compromising aesthetics and functionality. The parts of the proposed bus stop will be easy to assemble and disassemble, making it reusable. The shelter can also be adjusted to fit different sites.

Unconventional methods will be used for the design, giving it a sleek and pleasing look. Research was done on how and why current bus stops are built and how the structures can be improved.

These commuter-friendly bus stops will allow the commuters to enjoy a pleasant experience, while waiting for a bus.