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MILESTONE@UM

The RealCount Automated Traffic Classifier

Figure 1: RealCount™ Automated Traffic Classifier console

Traffic data is important in transport planning, traffic impact assessment, any planning and design of transport facilities and road networks. It is a compulsory input for carrying out traffic impact studies for any new land use development such as residential, commercial, mixed development areas and townships. This opens the door for invention of an accurate and comprehensive traffic data tool. The invention called The RealCount™ Automated Traffic Classifier (RealCount™ ATC) (Figure 1). It is the only automated traffic classifier that can provide individual vehicular data and traffic without any estimation. The system is also capable of isolating each vehicle within a traffic platoon and can classify the vehicles according to number of axles and wheelbase. It is classified under intrusive multiple technology as the detectors and road sensors are installed on the road using a special road tape with minimum to no damage to the road (Figure 2). As many other research projects, the invention underwent many challenges from preliminary design, hardware and software development and improvement, functional testing and product enhancement for commercial purposes.

Figure 2: RealCount™ ATC installed on the road

As mentioned earlier, its invented to provide individual vehicular data without any estimation as illustrated in Table 1.

Parameters	
Vehicular	**Traffic**
Wheelbase	Headway (s)
Number of axles	Total axle count
Speed (km/h)	Total traffic volume
Vehicle Type	Classified traffic volume

Table 1: Parameters collected by RealCount™ ATC

Besides that, it has the ability to capture continuous data throughout the day (and not through sample which can be biased) and hence can demonstrate the variation of traffic parameters with time throughout the day. With accurate, reliable, comprehensive and continuous traffic and vehicular data all year around, the road investment planning and maintenance management system could be enhanced at the same time the number of accidents and fatalities on our roads could be minimized. Below is the summary of the features and specifications of this invention:

- Equipped with memory that can collect 300 000 data.
- Operates on 12V battery pack.
- Last up to 5 days of continuous data collection for a road capacity of 2500 vehicles per hour.
- Data could be transferred to a computer through a USB connection at any time.
- The RealCount™ Datalogger software uploads the data recorded from the device and data can be exported to Microsoft Excel® for further analysis.

This research won a Gold Medal and the Best Of The Best Award at the MTE 2013.

Dr. Ahmad Saifizul receiving The Best Of The Best Award-MTE 2013.

Inventors:

Dr. Ahmad Saifizul Abdullah
Prof.Ir. Mohamed Rehan Karim
Mr. Airul Sharizli Abdullah

Center for Transportation Research (CTR), University of Malaya
Tel: 03-7967 5339
Email: saifizul@um.edu.my
Website: ctr.um.edumy

Centre of Research Services, Institute of Research Management & Monitoring | Level 2, Research Management & Innovation Complex, University of Malaya, 50603 Kuala Lumpur, MALAYSIA.
Tel: (603) 7967 4651/6942 **Fax:** (603) 7967 6290 **Email :** pengarah_ppp_ippp@um.edu.my

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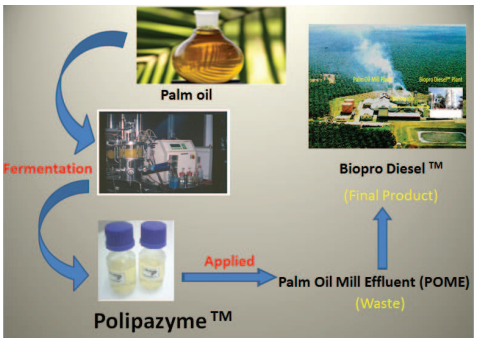
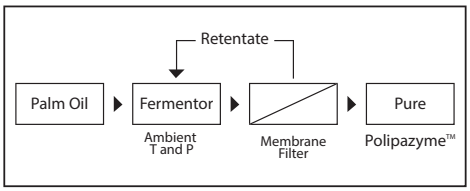
Polipazyme



Commercial application of polipazyme.



POLIPAZYME™ STANDARD QUALITY
Shelf life : 60 days after reconstitution
Storage conditions: 2-7°C
Stability : 30 days (25-6°C)
Activity: 1700 U/ 100 ml

Ever wonder what an enzyme could do apart from its principal function in the body which is to break down food. Well Dr. Ishenny Mohd Noor and his team have successfully derived a novel enzyme called Polipazyme™ from palm oil using a fermentation process. What does it do? It converts waste water from the palm oil mill also known as POME, to Biopro Diesel fuel, fertilizer and clean water. In short, we could say that its an enzyme which converts a potentially polluting material into multiple useful products. The Lipase production from palm oil using microbe by fermentation has been patented (PI 2012700014) under University of Malaya. Polipazyme™ is the crucial catalyst to produce Biopro Diesel Fuel™. This technology for producing Biopro Diesel can also be applied to process various other wastewater from edible oil industries such as wastewater from industries producing soya oil, corn oil, castor oil, rapeseed oil, sunflower oil, etc. To add on, it could be said that this technology is one of the best solutions for wastewater management with zero waste (effluent discharge). Biopro Diesel is also a green fuel and environmentally benign. Its properties are in Table 1. Gyrus Tech Sdn. Bhd. (No. 1082839-D) is a spinoff company set up

Table 1

Properties	Biopro Diesel	Current Diesel	Euro 2M DS	Euro 4M DS
Ash, wt %	0.01	0.01	0.01	0.01 max
Pour point, oC	10	15	15	15 max
Flash point, oC	63	60	60	60
Kinematic viscosity @ 40oC	5	1.6 - 5.8	1.6 - 5.8	1.6 - 5.8
Copper corrosion	0	1	1	1 max
Water by distillation, vol%	0.02	0.05	0.05	0.05
Sediment by extraction, wt%	0	0.01	0.01	0.01 max
Micro carbon residue, wt%	0	0.1	0.1	0.1 max
Density, Kg/L	0.861	to be	To be reported	Tobe reported
Total acid number, mg KOH/g	0.15	0.25	0.25	0.25 max
Cetane Number	56	45	49	51
Total distillation	350	0	370	360
Total sulfur, ppm	0	3000	500	50

Data from Biofuel Laboratory Chemical Engineering Department University of Malaya, 27/12/2012

by University of Malaya under Dr. Ishenny's team. They hold a huge responsibility, which is for the design and fabrication of Biopro Diesel Plant with a minimum capacity of 20 tons per day. The company provides appropriate training for engineers and operators for the Biopro Diesel plant's services and maintenance of the plant's machineries.

Dr. Ishenny with his award at MTE 2013

To add on, Gyrus Tech is also in the process of converting an existing Biodiesel Pilot Plant into Biopro Diesel Pilot Plant. Thus it received RM750,000.00 loan from UM for its modification work. This modification enables Gyrus Tech to produce sufficient amount of Biopro Diesel to run UM buses. It is expected that the renovated pilot plant can produce a minimum of 1000 L per day. The facts of Biopro Diesel fuel are also shown in the above Table 1. This research was awarded the Best Biotechnology Award and swiped away a Gold Medal at the MTE 2013.

Inventors:

Dr. Ishenny Mohd Noor
Dr. Badrul Si Ali
Dr. Masitah Hasn
Prof. Dr. K.B Ramachandran
Prof. Dr. Mohd Azlan Hussain
Prof. Dr. Nik Meriam Nik Sulaiman

Department of Chemical Engineering,
Faculty of Engineering,
University of Malaya

Tel: 03-7967 6879
Email: ishnoor2011@um.edu.my

Centre of Research Services, Institute of Research Management & Monitoring | Level 2, Research Management & Innovation Complex, University of Malaya, 50603 Kuala Lumpur, MALAYSIA.
Tel: (603) 7967 4651/6942 **Fax:** (603) 7967 6290 **Email :** pengarah_ppp_ipppt@um.edu.my