



Making The Grade for the Future



Tuesday, 21 September 2021, Kuching – Following Cyberjaya’s announcement on the three-month pilot project for the trackless Autonomous Rapid Transit (“ART”), the technology has been the talk of Malaysia. How much do we know about ART - the heart of Sarawak’s Kuching Urban Transportation System (“KUTS”) project?





Is it a bus? Is it a tram? Is it a light rail transit (“LRT”)?

The Autonomous Rapid Transit (ART) vehicle is described as a mixture of a bus, LRT, and tram which runs on street level. Rather than requiring a dedicated track to function, ART uses the same road we travel daily with the system running on rubber wheels and guided by virtual track navigation.

The ART for KUTS has a capacity of 300 passengers per 3-car set (extendable up to a unit of 5-car set) with a top speed of approximately 70km per hour and powered by electricity generated from hydrogen.

How autonomous is autonomous?

In this period of innovation, technology has advanced to a stage where processes and technology appear to function independently. The ART is no different, capable of operating “driverless” which is measured in terms of Grade of Automation (GoA). The following are the descriptors of each level of GoA:

Grade of Automation (GoA)	Types of train operation	Setting train in motion	Stopping train	Door closure	Operation in event of disruption
GoA1 	ATP* with driver	Driver	Driver	Driver	Driver
GoA2 	ATP* and ATO* with driver	Automatic	Automatic	Driver	Driver
GoA3 	Driverless	Automatic	Automatic	Train attendant	Train attendant
GoA4 	ATO	Automatic	Automatic	Automatic	Automatic

***ATP – Automatic Train Protection; ATO – Automatic Train Operation
(Peterson and Wahlborg, Semantic Scholar 2019)**

Autonomous vehicles bring a promise of enhanced connectivity, improved safety, as well as drive sustainability via the use of artificial intelligence, sensors and green technology. It offers a safe and round-the-clock operation which increases the frequency of transport availability and greatly reduces emissions with efficient driving.

What about KUTS?

In line with Sarawak’s aspiration to develop Smart Cities, the Kuching Urban Transportation System (“KUTS”) will provide a modern, green, and efficient public transportation system. Towards this end, KUTS will be designed with a view for transportation that is upgradable to GoA 3: where ART is both self-driving and efficient! Among factors that influence this include decisions from policymakers, route design, and more.

Kuching will be among the first in Malaysia to adopt a trackless autonomous transit system and the first to do so with hydrogen power.