



### INTRODUCTION

- DU-Bus SMS is a complete monitoring service system for UTM campus buses. The architecture include geolocation sensor transceiver installed in the bus fleet, web application to capture and process Websockets from the sensors plus user interface application (App).
- Developed U-Bus SMS mobile App allows UTM students and UTM fleet manager to monitor bus movement. The App also acts as a platform for quick dissemination of announcements or alerts to bus passengers, drivers as well as managers regarding campus bus transportation.

### NEEDS

- With decreasing number of operating buses within the campus, bus transportation for UTM students needs to be correspondingly managed for optimum services.
- Providing real-time information regarding campus buses' geolocation and their ETA to bus stops would assists students in planning their bus journey.
- Given that UTM also hires chartered bus for students to commute within campus, U-Bus SMS allows verification of chartered buses trips made plus routes taken. Additionally, driver's driving pattern could be analyzed in-depth.

### APPROACH

- IGPS-equipped geolocation sensors that are placed in buses would transmit Websockets
- through cellular mobile internet connection. Websockets data are analyzed to provide :
  - Location of each bus within the campus.
  - ETA to bus stops along the buses' routes.
  - Verification of number of trips completed and routes taken by each service bus.
  - Bus deviation from its planned route.
- Websockets data are recorded to dedicated server for archiving and medium to long term analysis.

### BENEFITS PER COST

- (April – Sept 2016) - Users : 231,736
- Operation Cost (April – Sept 2016)
  - 32 buses for 15 routes dan 20 hubs,
  - Minimum trip 300km/bas: RM38,400/day or RM14 Million/year
- Trip cost per person : RM44.74/Trip
- Trip cost person : RM29.82/Trip

### COMPETITORS

- Commercial fleet service manager software. in the market that are costly.



**PROJECT LEADER** : Prof. Ir. Dr. Shohrul Kamal Abdul Rahim  
**PHONE NO** : +6012-7282711  
**EMAIL** : sharulkamal@utm.my