IoT Enable Relay Network for Demand Based Light Intensity Controlled Seamless Highway Lighting System

PRODUCT BACKGROUND

- Highway authority spends huge amount of money per year for Highway Lighting System worldwide (e.g., Malaysia USD 25 Million per year).
- Internet of Things (IoT) becomes one of the popular concepts that provides prominent solutions in various paradigms.
- Exploiting IoT, this work develops a prototype for efficient highway lighting system at lower energy consumption.
- Two key features need to be taken into account for designing such a system are: i) Road users' point of view (i.e. comfort and safety) ii) Road service providers' point of view (i.e. Reduce Energy Consumption and Maintenance Cost).
- The characteristics of this prototype revile the effectiveness of the proposal.

BENEFITS/USEFULLNESS

- It reduces energy consumption based on the percentage of busyness of highway without compromising the comfort of the driver => Seamless Lighting System
- In term of cost reduction, 100 lamp-posts can save USD 480, USD 350, and USD 160 per month, if the busyness of highway is 10%, 40% and 70%, respectively.
- The break-even points of the proposed system are around 1, 1.8, and 3 years in terms of the road busyness of 10%, 40% and 70%, respectively.
- Novel automated maintenance technique for identifying the faulty lamppost by using back tracking detection.
- The devices embedded in this system are for long-term use, cost reduction thereby.

NOVELTY

A prototype for demand based light-intensity controlled seamless highway lighting system has been developed.

COMMERCIALIZATION / POTENTIAL MARKET

PT. Fusi Global Teknologi, Indonesia.

FUNDER

Pre-Commercialization Grant (UIC170303) – funded by UMP. International Grant – funded by Fusi Global Teknologi

ACHIEVEMENT

2. Best of the Best Award, CITREX 2017, Malaysia.
3. Most Commercial IT Innovation Award, CITREX 2017.
5. Silver Medal, IENA 2017, Germany.

PUBLICATION


FIGURES

Figure 1: Architecture of proposed system
Figure 2: Prototype
Figure 3: Site Visit at UMP Pekan

CHARACTERISTICS OF PRODUCT

Figure 4: Utilization of Traditional vs Proposed Method (100 Lamp Post)
Figure 5: Saving Cost
Figure 6: Break-even point vs Proposed Method

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