KCG COLLEGE OF TECHNOLOGY

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SMART SOLUTIONS FOR RAILWAYS
LITERATURE SURVEY

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1.INTERNET OF THINGS FOR SMART RAILWAYS: FEASIBILITY AND APPLICATION

Authors: Ohyun Jo, Yong-Kyu Kim, Juyeop Kim

Date of Publication: 06 September 2017

Project Description:

The explosively growing demand of Internet of Things (IoT) has rendered broadscale advancements in the fields across sensors, radio access, network, and hardware/software platforms for mass market applications. In spite of the recent advancements, limited coverage and battery for persistent connections of IoT devices still remains a critical impediment to practical service applications. In this paper, we introduces a cost-effective IoT solution consisting of device platform, gateway, IoT network, and platform server for smart railway infrastructure. Then, we evaluate and demonstrate the applicability through an in-depth case study related to IoT-based maintenance by implementing a proof of concept and performing experimental works. The IoT solution applied for the smart railway application makes it easy to grasp the condition information distributed over a wide railway area. To deduce the potential and feasibility, we propose

the network architecture of IoT solution and evaluate the performance of the candidate radio access technologies for delivering IoT data in the aspects of power consumption and coverage by performing an intensive field test with system level implementations. Based on the observation of use cases in interdisciplinary approaches, we figure out the benefits that the IoT can bring.

2.SMART TRAIN DETECTOR USING IoT APPROACH

Authors: Payal Srivastava, Rana Majumdar, Bonny Paulose, Sunil Kumar Chowdhary, Abhishek Srivastava

Date of Publication: January 2019

Project Description:

Only metal detection in railway tracks to indicate the movement of train is not sufficient. The sensors present in the railway tracks can detect any metal object, be it a train or mere a coin. Thus, in order to make the working more foolproof, introduction of another parameter, i.e., weight on the railway track is necessary. This paper describes an approach to collaborate metal detection with weight detection in railway tracks to detect the train movement using the principle of IoT, using the load cells along with the metal sensors.