SMART SOLUTION FOR RAILWAYS

LITERATURE REVIEW

[1] The proposed solution uses an Android application which controls the railway gates at railway crossing lines. Smartphones are embedded with GPS and Google Maps. Google Maps is used to show the railway lines, and GPS is used to track the train. The mobile application is given to the engine drivers to close the railway gate before 5km and open it once the train crosses.

[2] The proposed solution transmits the images taken from the cameras for monitoring the railways using IoT to a central server. Image is processed, these images are analysed, and meaningful data is extracted.

[3] The proposed solution introduces a cost-effective IoT solution consisting of a device platform, gateway, IoT network, and platform server for smart railway infrastructure. To deduce the potential and feasibility, they have proposed a network architecture of IoT solution and evaluated the candidate Radio Access Technologies (RATs) performance for delivering IoT data in power consumption and coverage by performing an intensive field test with system-level implementations.

[4] The proposed solution has an architecture for intelligent railways with four layers: perception and action layer, transfer layer, data engine layer, and application layer. Smart sensors of different categories are connected to railway networks via various network means. The captured sensor data combined with other information (e.g., operation data and user data) constructs extensive data collection. Therefore knowledge can be discovered from the data collection through data mining and artificial intelligence technologies. Based on the collected data and learned knowledge, applications can be developed to meet the requirements of railway systems.

[5] In this work, they have proposed two different solutions to handle network and sensor failure in the control system of the switch heaters. Firstly, they have proposed a solution to detect failures in the communication network and react

by introducing a distributed mode based on the election of a local coordinator. Secondly, we defined a mechanism to detect and respond to the failure of the temperature sensors deployed on the local controllers.

[6] This work proposes a potential solution for overcoming the limitations of using smart sleepers in railways. The solutions include using intrinsic self-sensing concrete, adding self-healing features, taking advantage of recent wireless sensing developments, and connecting with the emerging Internet of Things (IoT) technology.

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