IOT Based Bridge Collapse and Flood Detection System

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Abstract: *Knowledge on the dynamic properties of bridges improves condition assessment, maintenance scheduling and emergency planning to better serve the public. The Crack inspection is an important task in the maintenance of bridge and it is closely related to structural health of the bridge. It is done through a very manual procedure, an experienced human inspector monitors the whole bridge visually and try to detect cracks on the bridge and marks the location of the crack. The proposed system is implemented using a real time wireless sensor network for bridge monitoring is of lossless data transmission over several minutes continuously. Overall information about the bridge will be stored on the cloud. The cracks will be detected automatically and send the real time data with location of crack to the PWD department. If bridge will be collapse because of any accident or a flood that time the barriers will be open and the Vehicles will stop at some distance, and also notify about the accident to the nearby government departments like Police station, Hospitals and Society. After the accident detected by system up to previous and next 5KM the alert notification will shows another route for travellers.*

Keywords: Structural health monitoring, wireless sensor network, Arduino

REFERENCES

[1]. Harutoshi Ogai, Jong-In Cheon, Ming-Yuan Hsieh, Hiroshi Inujima, Noriyoshi Yamauchi, Development of Bridge Diagnosis System by Using Sensor Network and Independent Component Analysis, in 16th IEEE International Conference on Control Applications, Part of IEEE Multi-conference on Systems and Control, Singapore,1-3 October 2007.

[2]. Shinae Jang and Billie F. Spencer, Jr., Structural Health Monitoring for Bridge Structures using Smart Sensors, in NSEL Report Series Report No. NSEL-035 May 2015.

[3]. A spectral-based clustering for structural health monitoring of the Sydney Harbour Bridge Mehrisadat Makki Alamdari , Thierry Rakotoarivelo, Nguyen Lu Dang Khoa CSIRO,Data61,13 Garden Street, Eveleigh, NSW 2015, Australia.

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[5]. Article Design and Implementation of a New System for Large Bridge Monitoring- GeoSHM Xiaolin Meng 1,* ID

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