

**SURVEY ON BRIDGE AND FLYOVER CONDITION MONITORING SYSTEM****Anoop P*, Halesh PM*, Mrs. Swathi**

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DOI: 10.5281/zenodo.581252

Keywords: wireless sensor network, ZigBee, flex sensors, load cell, vibration sensor.**Abstract**

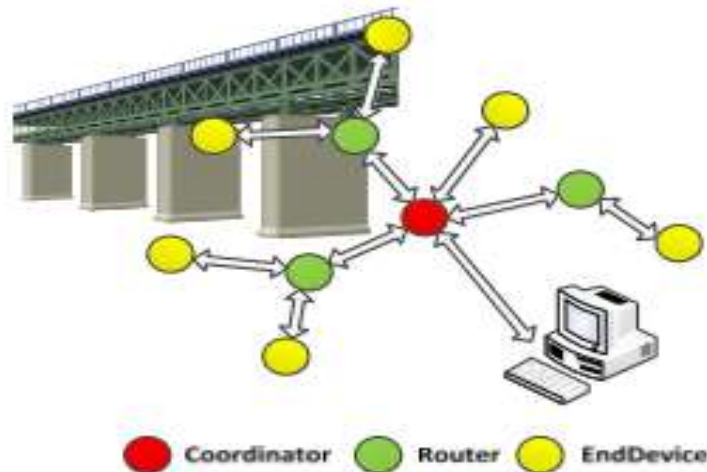
Health monitoring of bridges is one of the important challenges in cities. Monitoring the damages in the bridge is an increasing concern for the benefit of public as there is a threat to people's life and property. Instalment of wireless sensor network is one of the possible solutions to structural health monitoring. The ZigBee convention is utilized for observing the scaffolds harms and can screen different parameters, for example, temperature, weight, vibrations, stress and dampness. Stack cell, flex sensors and vibration sensors can be utilized to screen the condition. The heap cell is utilized to discover the limit of scaffold. The flex and vibration sensor is utilized to recognize the inward and outer harms .If harm is distinguished by means of ZigBee correspondence the harm location is educated to the Base Station. They locate an extensive variety of uses in natural checking, modern observing, and auxiliary checking.

Introduction

Railroad frameworks and general transportation framework are basic in numerous districts, and can comprise of a few a huge number of scaffolds, being utilized more than a very long while. It is basic to have a framework to screen the strength of these scaffolds and report when and where upkeep operations are required. In august 2016 a scaffold interfacing Mumbai and Goa crumpled as the extension was old and was built in British time. Around 20 individuals were disappeared amid this occurrence. So it is constantly better to screen extensions and flyovers to keep the mishaps that will happen. Headways in sensor innovation have brought the computerized constant extension and Flyover wellbeing checking framework. Many long traverses connect in Korea and in Japan have received this on-going wellbeing observing framework. In any case, current framework utilizes confused and high cost wired system among sensors in the scaffold, which diminishes the general cost of establishment and upkeep cost of wellbeing observing framework. Since the propelled innovation is utilized to handle the information from sensor and send the status to web application utilizing IOT a powerful checking of the scaffolds and flyovers can be accomplished.

Literature Survey

Li Yundong in his paper says in regards to observing state of scaffolds utilizing 3G he builds up a model which is a three level engineering embraced in checking framework which incorporates central server, acquisition nodes and a local controller. The nodes are put at various parts of the extension and are overseen by the nearby controller. This operation can help in detecting damages in the bridges and flyovers. Second, 3G remote system is used to give enough transfer speed to constant information transmission between neighbourhood controller and focal server. Fhang Zhang another creator who expounded on extension observing methods. His technique utilizes ZigBee innovation for correspondence prepare. It likewise utilizes diverse kind of sensors and a controller for preparing the information which would be given by the sensors situated at various areas of the scaffold.

**Basic Architecture****Current Systems**

The present arrangement of observing scaffolds is exceptionally customary where the handled information at the extensions will be sent utilizing wired associations. In the old circumstances the extensions were inspected physically by watching them painstakingly.

Drawbacks

- Manually examining bridges can lead to human errors
- Data transfer rate will be slow

Proposed Inclusions**1) ZigBee Technology**

ZigBee convention is an open standard for low power remote systems administration of checking and control gadgets. IEEE 802.15.4 standard concentrate on low-rate individual territory organizing and characterizes the lower convention layers. ZigBee utilizes the IEEE 802.15.4 physical and Medium Access Control layers to give the dependable information exchange. The 802.15.4 standard gives solid dependability through a few instruments at numerous layers. IEEE 802.15.4 gives three recurrence groups to correspondences. Worldwide utility, spread, way misfortune, and information rate contrasts let ZigBee profile engineers improve framework execution. The 2.4 GHz band is utilized worldwide and has 16 channels and a greatest over-the-air information rate of 250 Kbps.

2) ATMEL 89C51 MICROCONTROLLER:

The AT89C51 is a low-control, elite CMOS 8-bit microcomputer with 4 Kbytes of Flash Programmable and Erasable Read Only Memory (PEROM). The gadget is fabricated utilizing Atmel's high thickness non-unpredictable memory innovation and is perfect with the business standard MCS-51 guideline set and stick out. The on-chip Flash permits the program memory to be reinvented in-framework or by a traditional non-unstable memory software engineer. By joining an adaptable 8-bit CPU with Flash on a solid chip, the Atmel AT89C51 is a capable microcomputer which gives a very adaptable and practical answer for some inserted control applications. The AT89C51 is planned with static rationale for operation down to zero recurrence and backings two programming selectable power sparing modes.



INTERNATIONAL JOURNAL OF RESEARCH SCIENCE & MANAGEMENT

Future of Bridge Monitoring

The eventual fate of the venture is to assemble a multi-useful remote scaffold observing framework produced for simultaneous organization of accelerometers, load and vibration utilizing an IOT idea controlled by a portable application. The half breed detecting abilities of these hubs fulfils the immediate requirements for economic, low-maintenance load ratings and short-term dynamic measurements. In addition to providing the hardware functionality for development of a long-term continuous bridge monitoring system. Such emerging technology is now capable of performing the bridge monitoring tasks that have been highly proposed and promised.

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