A

Mini Project report

On

**DETECTING NODE FAILURES IN MOBILE WIRELESS NETWORKS:A PROBABILISTIC APPROACH**

(Submitted in partial fulfillment of the requirements for the award of Degree)

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

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2014-2018

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

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### **CERTIFICATE**

This is to certify that the project entitled “**DETECTING NODE FAILURES IN MOBILE WIRELESS NETWORKS:A PROBABILISTIC APPROACH**” being submitted by **V.SAI CHARAN(147R1A05N6), A.V.SAISARANYA(147R1A05J6), SHALINI SINHA(147R1A05N5)**in partial fulfillment of the requirements forthe award of the degree of B.Tech in Computer Science and Engineering of theJawaharlal Nehru Technological University Hyderabad, during the year 2017-2018. It is certified that she has completed the project satisfactorily.

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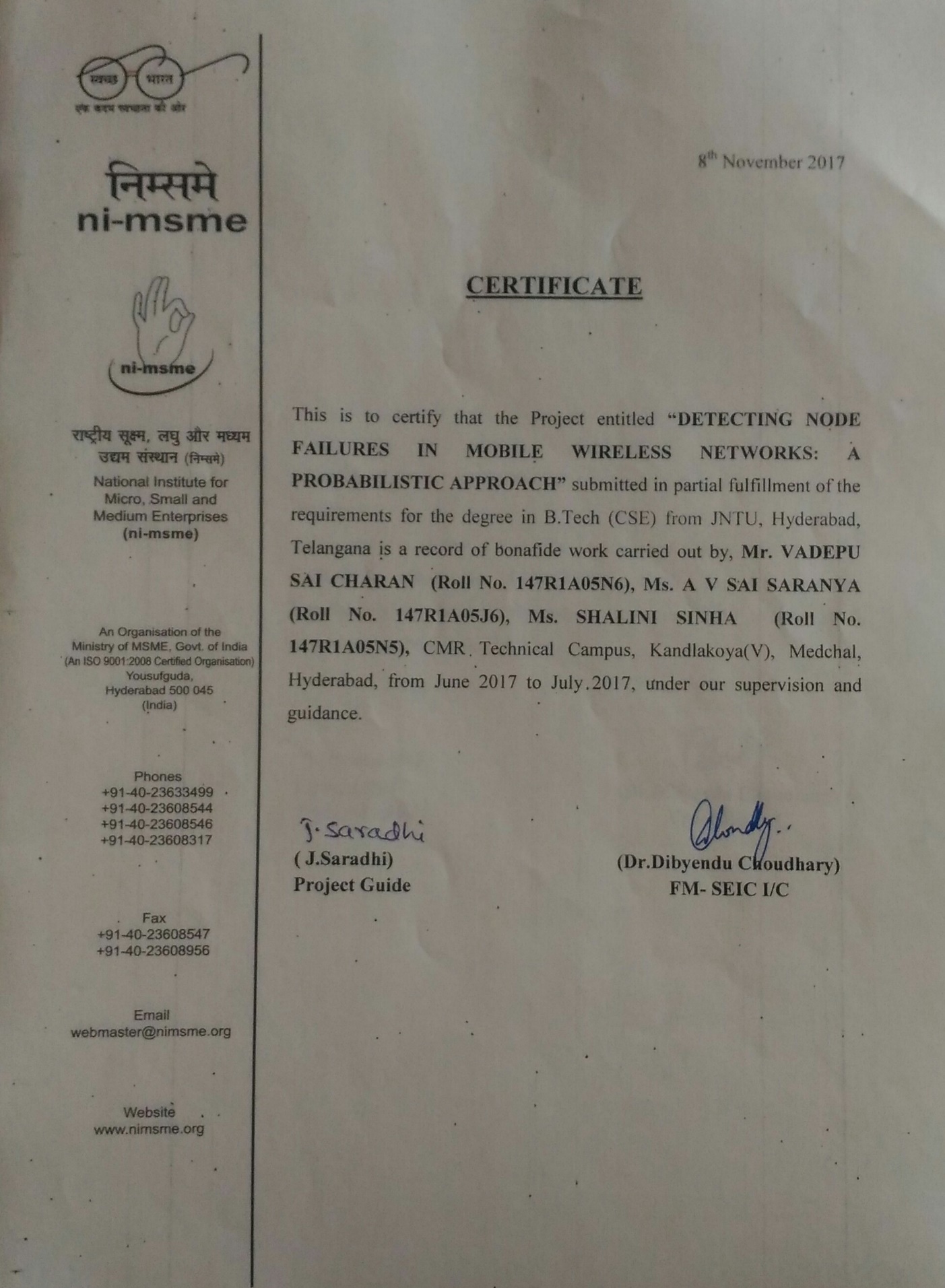
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**ABSTRACT**

Detecting node failures in mobile wireless networks is very challenging because the network topology can be highly dynamic, the network may not be always connected, and the resources are limited. In this paper, we take a probabilistic approach and propose two node failure detection schemes that systematically combine localized monitoring, location estimation and node collaboration. Extensive simulation results in both connected and disconnected networks demonstrate that our schemes achieve high failure detection rates (close to an upper bound) and low false positive rates, and incur low communication overhead. Compared to approaches that use centralized monitoring, our approach has up to 80 percent lower communication overhead, and only slightly lower detection rates and slightly higher false positive rates. In addition, our approach has the advantage that it is applicable to both connected and disconnected networks while centralized monitoring is only applicable to connected networks. Compared to other approaches that use localized monitoring, our approach has similar failure detection rates, up to 57 percent lower communication overhead and much lower false positive rates (e.g., 0.01 versus 0.27 in some settings).

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