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Major Project Report

on

A Secure and Fine-grained Scheme for Data Security in Industrial IoT Platforms for Smart City

Submitted to

Jawaharlal Nehru Technological University, Hyderabad

in partial fulfillment of the requirements for the award of Degree of

Bachelor of Technology

in

Computer Science & Engineering

by

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the project entitled "**A Secure and Fine-grained Scheme for Data Security in Industrial IoT Platforms for Smart City**" is submitted by ***P. Sneha (196Y1A0576), P. Anusha(196Y1A0577)*** *and* ***T. Rithika(196Y1A05A4)*** in the partial fulfillment of requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering during academic year 2022-23.

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ABSTRACT

With the high popularity of IoT devices, industrial IoT platforms, such as smart factories and oilfield industrial control systems, have become a new trend in the development of smart city. Although various manufacturers pay wide attention to the different functional requirements of IoT platforms, they seldom consider security issues, especially in terms of data security, which has led to a large number of cases of privacy leakage. Some works have been made to provide secure and reliable communication solutions for industrial IoT platforms, unfortunately, as different communication protocols and interaction models are adopted in different scenarios, these solutions are mainly isolated and fragmented. We analyze the logic and requirements of different industrial IoT scenarios to abstracts them into a universal model. We summarize the possible attacks on different industrial IoT platforms and design a security scheme to capture these attacks based on the conditional proxy re-encryption primitive. The proposed scheme ensures that data cannot be accessed by an unauthorized user. We also evaluate the security and performance of our scheme, and the experimental results show that our scheme can achieve the functionality and security requirements with low overhead.

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