**Project Title:** An Implementation of Secure Group Communication
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**Abstract:**
In recent years, group based applications and protocols have gradually gained popularity as they provide efficient packet delivery from one source(s) to group of receivers. Since these applications typically involve communication over open networks, security has become an important requirement. Key management is fundamental building block for providing secrecy of group communication. Several group key schemes have been proposed to provide secure group communication. Nonetheless, little real implementations have been carried out in real environment especially in wireless environment. This paper is focused to deploy a real group key management scheme using JAVA 2 platform Enterprise Edition, which considers limitation of wireless environment.

Based on advantages and drawbacks of existing group key management schemes, decentralized approach is selected as a desired architecture for group key management in this work. The components and their roles as well as protocols which involved in this architecture are then described in detail. An implementation of the proposed approach is conducted by using Java application programming interface (API) platform. Subsequently, variation aspects of proposed scheme in regarding to join and leave operation as well as updating key materials are evaluated and tested while system was deployed in a real wireless environment. The assessment of system is demonstrated in terms of general analysis and performance analysis.