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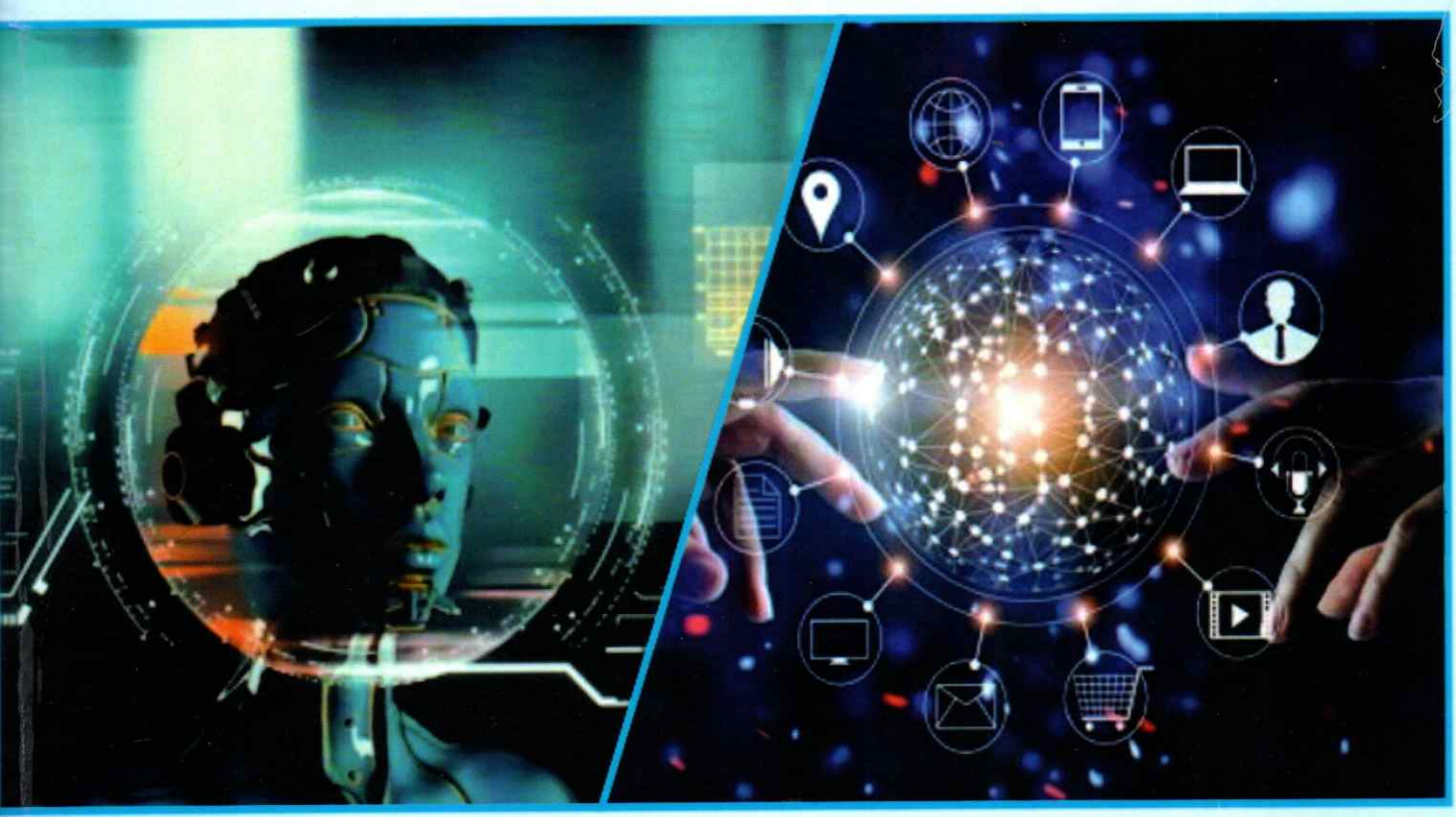

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Encrypt and Decrypt Dual Crypt Algorithm

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Abstract: This study introduces the Dual Crypt Algorithm, a novel hybrid encryption technique that combines the LR method and the Exclusive OR (XOR) operation. Increasing data security and strengthening encryption's defenses against attackers are the primary objectives. With this approach, the output is initially encrypted using the Exclusive OR operation, and the plaintext is subsequently encrypted once more using the LR method. When decryption occurs, the same procedure is reversed. AMS Classification : 05C78

Keywords: Exclusive OR, LR method, Hybrid encryption, Symmetric Key Cryptography, Encryption and Decryption.

IoT-Based Motion-Triggered Voltage Monitoring System Using PIR Sensor

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Abstract: This paper presents the implementation of an Internet of Things (IoT) based solution for real-time motion detection and continuous voltage measurement to achieve more energy efficiency and reliability. In the model, a Passive Infrared (PIR) sensor is used to detect motion, while a voltage sensor is used to continuously measure the supply voltage. The motion detection system uses a low-power electronic device with a wireless-enabled feature to connect and transfer the data to an IoT cloud platform. This design monitors and ensures immediate notification when motion is detected, and continuously tracks the voltage consumption and electrical fluctuations to prevent power-related failures. By using dual function, this motion detection system increases the reliability and automated solution over conventional detection. The experiment was conducted with distance vs accuracy and response time with distance. The results obtained from experimental tests achieved a detection accuracy of 98% within a range of up to 7 meters. Hence, the proposed system demonstrates a low-cost and effective method for a smart energy monitoring application.

Keywords: IoT, Motion Detection, Voltage Sensor, PIR Sensor, Cloud Computing, Microcontroller