**IoT Sensor Initiated Healthcare Data Security**

**Alternative Title:**

**Aim:**

Aim of the project is to develop a secure data transmission system between healthcare devices and end-user application.

**Abstract:**

Wearable or portable healthcare devices help to monitor the patients from remote location and can be used for emergency purposes. These systems are connected via IoT network to transmit and receive the data and command. Transmission of data through IoT system presents vulnerabilities and security risks to patients’ personalized health information. To ensure data protection, basic encryption techniques are implemented in current systems.

To enhance the safety features of the data, here we have implement the steganography method. Basically, steganography is a process of hiding confidential data into an envelope data (or non-secret data). Here, we are hiding healthcare sensor readings into an image file and transmit to end-user application like webpage or android application. The IoT device hides the sensor values directly to the image and send image to the user (Doctor/Patient) through router or cloud database. At user-end, user will receive the image file and decrypt to extract the actual sensor values. In-between the transmission process third persons cannot access or view the actual data.

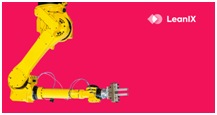
**Existing System:**

Existing system performs multiplication of unique key with raw sensor values and again the resultant value is multiplied with another unique to get encrypted data. Unique differs for individual to avid ensure the safety.

**Proposed System:**

Proposed system hides the encrypted sensor data within the image file. When the image file transferred over cloud or local network, third party or attackers cannot recognize the actual data transmission. They can only view the image files.

**Block Diagram:**



Sensor Data

Cover Image

Stegno-Image



Stegno-Image

End - User Application

IoT Actuator



Encryption Key

Encryption Key

**Hardware Requirements:**

* Raspberry Pi
* Heart rate and SpO2 sensor

**Software Requirements:**

* Raspbian OS
* GCC Compiler
* Android Studio

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