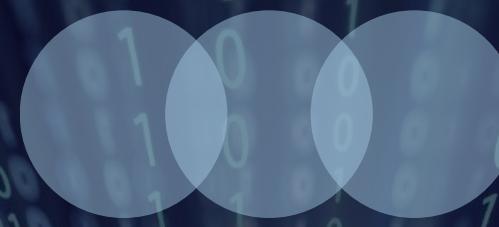




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SMART SECURITY FRAMEWORK

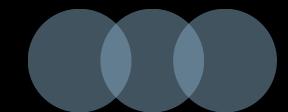
FOR EDUCATIONAL INSTITUTIONS USING IOT



GROUP 11



GROUP 11



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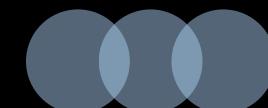
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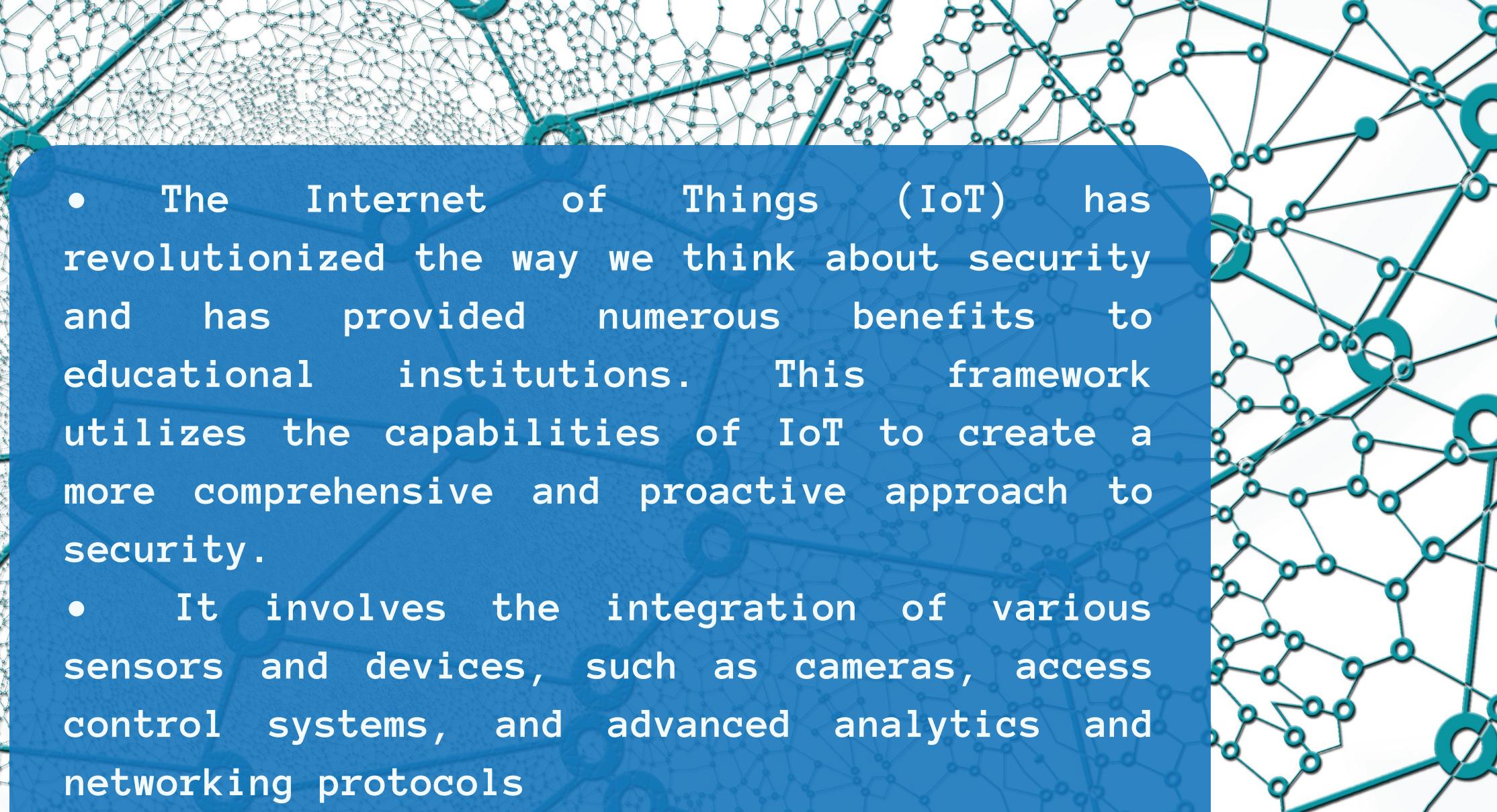


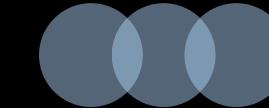
ABSTRACT

An Internet of Things (IoT) smart security framework for educational institutions is a system that uses a variety of IoT devices and sensors, access control, and data logging to enhance security and safety in schools. A safe and secure learning environment could be provided with this implementation.



INTRODUCTION

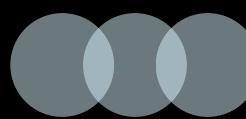
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- The Internet of Things (IoT) has revolutionized the way we think about security and has provided numerous benefits to educational institutions. This framework utilizes the capabilities of IoT to create a more comprehensive and proactive approach to security.
 - It involves the integration of various sensors and devices, such as cameras, access control systems, and advanced analytics and networking protocols to monitor and secure the physical and digital aspects of an educational institution.
 - The proposed smart security framework can be customized to meet the specific needs of each educational institution allowing for a tailored approach to security that addresses the unique vulnerabilities and risks faced by each institution.



Novelty

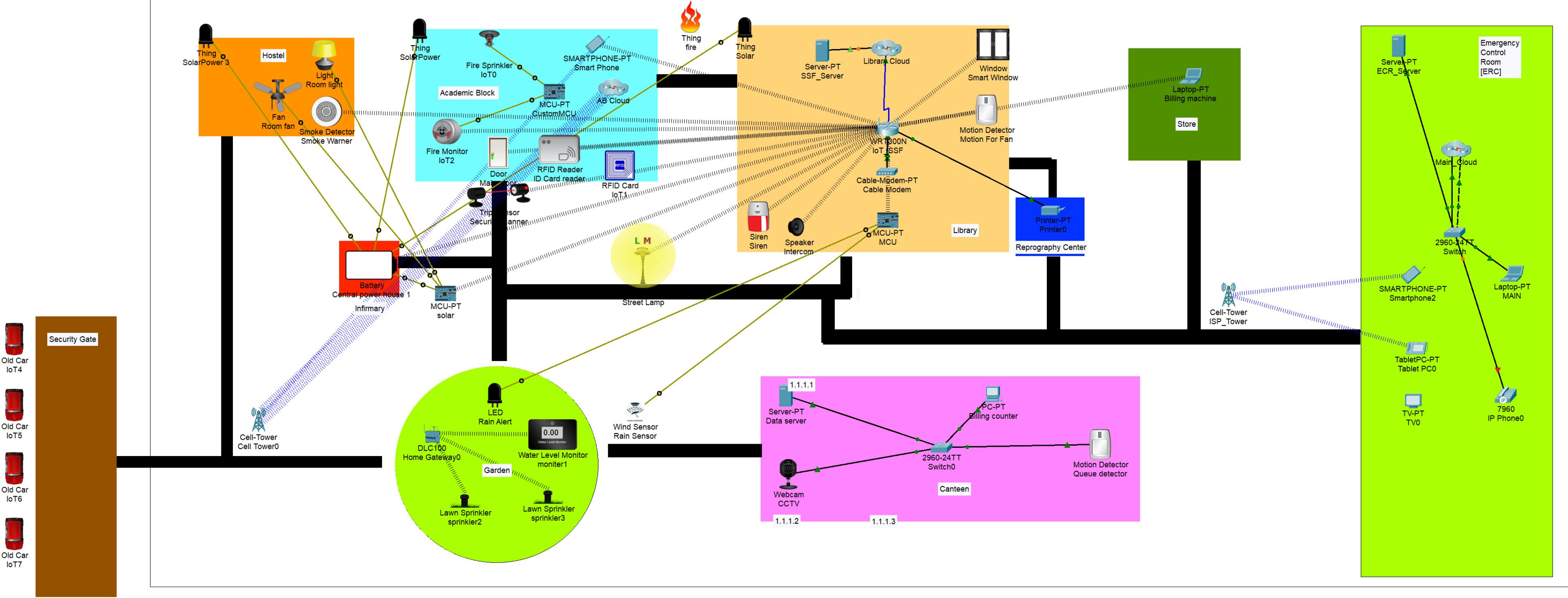


1. Well defined Educational Institute layout
2. To the existing sensors in the provided framework, multiple sensors that could be implemented in reality to sense the anomalies were added and simulated in our project.
3. Intermediate Fog Layer
4. This model can sense the pressure through networks only and it can check the confidence rate.
5. A separate Cloud network for storage
6. Live surveillance cameras were implemented at various parts of the institute to verify the genuineness of the emergency and to also predict the flow of the anomaly (like an attack/explosion).



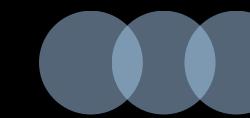
METHODOLOGY

1. Implement all sensors:
Temperature sensor, Voice sensor, Motion sensor, Smart Metal detector, Smoke sensor, Webcam
 2. Program all the SensorData() to the MCU-PT
 3. Read all the SensorData() and send it to the fog layer
 4. Collect the data from the fog layer and send it to the Central Emergency Control Unit (CECR)
 5. CECR will analyse the data, sends the respective team to the institution if it's an emergency call.
 6. Else, return back the possible solution to the institution's ECR.
-
- The diagram illustrates the methodology flow. At the top, five institutions (ADMIN, HOSPITAL, POLICE, RESCUE, COMMUNITY) are connected to a CLOUD SERVER. Below the CLOUD SERVER is the CENTRAL EMERGENCY CONTROL CENTER (CECR). The CECR is connected to various emergency vehicles: AMBULANCE, FIRE HYDRANT, and POLICE VAN. An inset at the bottom left provides a detailed view of the connection between sensors (ALARM, CCTV, PANIC BUTTON, SENSORS, ECR, METAL DETECTOR) and the CLOUD SERVER.



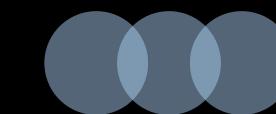
SMART SECURITY FRAMEWORK

A layout was created in Cisco Packet Tracer with the required sensors/actuators, monitors, servers. The Emergency Control Room was also created to bring about an even quicker response.



CONCLUSION

- In this project, Smart Security Framework (SSF) has been introduced for educational institutions. The recent past massacres have taken many precious lives. This might be depreciated by adopting an efficient and smart alerting system.
- Our proposed SSF is efficient and intelligent in alerting concerns in case of an emergency.



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