**FYP Abstract**

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**Project Title:** An exploratory study of the security for IoT devices

**Research Question:** what is the best security solution for IoT based smart homes?

**Project abstract:**

Internet of things (IoT) is one of the promising technologies that has attracted a lot of attention in the industrial field over the years. The number of Internet-connected devices that have a digital identity is increasing day by day. But the biggest concern after the entry of objects into private homes is the issue of privacy and information security. Data insecurity at all levels of the IoT model is the hottest research topic. Challenges are constantly increasing, and solutions must be constantly improving. The goal of this project is to analyse security and privacy issues within the IoT based smart home and come up with security solutions such as data confidentiality, data integrity, and data availability. This project’s core topic is about Critical Security Issues of the IoT based smart home, in order to implement a secure smart home, we need to identify the hardware components security issues of IoT smart home (Physical Layer), the network side security issues of IoT smart home (Transportation Layer), threats and issues related to the application layer, IoT protocols and encryption technology to secure communication within the IoT ecosystem. In order to evaluate and audit the security level of IoT network-based smart home, we are conducting an online survey that consists of several security questions to determine the level of security in a smart home environment. These questions will cover the most important and vulnerable part of IoT network and components that need to take into consideration for the purpose of security and privacy, however, when the users answer the questions, the result will determine the level of security within their IoT network which can help us to come up with a solution to secure their smart home. Some of the questions are as follow:

What type of encryption used on Wi-Fi?

Have you changed the default setting on IoT devices?

Have you set a strong password on IoT network devices?

**Technology to be evaluated:**

LoRa, Wi-Fi, Bluetooth, Zigbee, RFID

**Tools used to complete this project:**

Packet tracer, GitHub, Jira, Wireshark, Visio