**IS Project Proposal Document**

***Koneru Keerthi (kxk170003)***

***Lakshmi Priyanka Parimi (lxp160730)***

***Arpitha Mothukuri (axm163631)***

***Ankita Patil (asp160730)***

**IoT Security and Privacy:**

With the evolving technology and internet era over the globe, communication has become more flexible. The **Internet of Things** (IoT) is one of new dimensions in these evolved technologies, which helps to connect and exchange data over the network of physical devices, vehicles, home appliances and other items embedded with electronics, software, sensors, actuators etc. Apart from having the numerous advantages of speed communications, the Internet is also very dangerous platform as it allows the users’ identity to be easily traceable. Also, as most of the devices are connected through network, they are vulnerable to different attacks through network. Hence, it is important to have proper security and privacy for IoT by ensuring continuous device operation, by providing regular patches, upgrades, and software updates, to have proper cryptography and cybersecurity for the devices etc.

The following are the five devices, that we are interested to focus on:

1. LeFun Baby Monitor Wi-Fi Survelliance Camera
2. Fitbit Flex
3. Echo Dot
4. IOBD2 MFI Bluetooth Car Diagnostics Scan Tool
5. Mimo Smart Baby Movement Monitor

**Description of Top two devices:**

1. ***LeFun Baby Monitor WiFi Survelliance Camera:***

This device is used to witness or monitor baby's activity from other house/business/office using Wi-Fi. The device consists of two-way audio and motion detection. Though it has many benefits, it is vulnerable to attacks as it is connected through network. Many different attacks were discovered recently and hence, it is required to ensure the security of these devices as it would affect the baby and their cheer. Two of those attacks, which were discovered on these cameras are:

- Family reported that they heard some voices from the camera.

- The camera was controlled by the hacker and it followed the movements of the person [3].

One of the other attacks is to find the location of the device, by tracking them over the network. It would be of major concern to the security of baby as well as place in which it is located. Hence, we would like to perform analysis on how it can be attacked and how show different ways in which security ought to be increased.

1. ***Fitbit Flex:***

Fitbit flex is a physical activity tracker with a main goal to help people become more active, eat well, sleep better and ultimately, become a healthier human being. All day activity like steps, distance, calories burned and active minutes can be tracked using this device. This device though has many advantages, it is vulnerable to many attacks.

The central issue of this device is its data security. Studies show that all the personal information can be hacked by an attacker in 10 seconds with in a Bluetooth range. This includes all the health details of individual. Also, as most of the daily activity can be known, this can lead to identity theft that includes profiling from the insurance industry, stalking, etc. Also, as we sync data during intervals of time, it is stored in cloud and is open to third parties and sometimes to device developers also [4]. Hence, we would like to analyze more on how it can be attacked.

***References:***

[1] Davar Pishva, “Internet of Things: Security and privacy issues and possible solution”, 19th International Conference on Advanced Communication Technology (ICACT), (February 2017)

[2] “Statement on Internet of Things Privacy and Security”, ACM U.S. Public Policy Council and ACM Europe Council Policy Committee, (June 2017)

[3] Darlene Storm, “2 more wireless baby monitors hacked: Hackers remotely spied on babies and parents – Security is Sexy”, Computer World, (April 2015), Available at: https://www.computerworld.com/article/2913356/cybercrime-hacking/2-more-wireless-baby-monitors-hacked-hackers-remotely-spied-on-babies-and-parents.html

[4] Marie Boron, “Fitness trackers run into resistance over data security concerns”, THE IRISH TIMES, (June 2017), Available at:

https://www.irishtimes.com/business/technology/fitness-trackers-run-into-resistance-over-data-security-concerns-1.3119483