

Use of IOT Gecko for Asset Tracking

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ABSTRACT

(IOT) has provided an way to build powerful system and applications by the growing ubiquity of RFID, wireless, mobile and sensor devices. Many industrial IOT applications have been increasingly developed and deployed in recent years. Now-a-days, controlling and monitoring plays a main role in our day to day life. Everything we can monitor and control using advanced technologies. Remote access is a wonderful feature that came because of high speed internet. The main objective of proposed system is to provide a technology oriented and low cost system to make an advanced industry for those who away from their industry and want to control devices. There are many tracking systems like GPS, Geofencing, and Internet Tracking etc. But these systems are not capable to pinpoint exact location of the object. This smart object tracking system which has the capability to pinpoint the location of any entity to exact room it is currently located in. The IOT Gecko used as a tracking or monitoring device in this system. Gecko provide a network to all of the related component.

Keywords: Internet of Things (IOT), Server, Raspberry Pi, Webpage, Ethernet, Smart phone

I. INTRODUCTION

What is IOT Gecko?

IOT lizard may be a free IOT systems development platform for college kids, researchers and developers. gap doors to physical devices controlled over the web, IOT lizard provides you the tools and support to style your IOT primarily based systems with ease. Get sensor/device knowledge and use it over the web. Choose from our vary of system templates or build your own system to handle/monitor your IOT system on the net. Method device obtained values and show on-line. Operate motors, physical devices victimisation easy mouse clicks. Simply right your IOT systems and integrate it simply together with your favourite programming languages with API support for all platforms. IOT lizard Development doesn't need abundant cryptography information and has sensible support for IOT primarily based development. It provides associate degree economical

interface building platform to assist method and show parameters by hardware devices.

Features of IOT Gecko

- ✓ Efficient GUI Builder
- ✓ Process Sensor Values Over IOT
- ✓ Operate Motors Over IOT
- ✓ 2 Way Communication
- ✓ Develop Enterprise Level IOT Systems
- ✓ Online Development Support
- ✓ Easy Debugging
- ✓ API Support

II. WI-FI MODULE

ESP8266 wi-fi module is used for connection the control circuit to the IOT gecko platform via internet.ESP8266 is an integrated chip developed for the needs of a new connected world. It offers a complete and self-contained Wi-Fi networking solution, allowing it to either host the application or

to offload all Wi-Fi networking functions from another application processor.



Figure 1. WiFi Serial Transceiver Module w/ ESP8266

Specification:

- ✓ 802.11 b/g/n
- ✓ Wi-Fi Direct (P2P), soft-AP
- ✓ Integrated TCP/IP protocol stack
- ✓ Integrated TR switch, balun, LNA, power amplifier and matching network
- ✓ Integrated PLLs, regulators, DCXO and power management units
- ✓ +19.5dBm output power in 802.11b mode
- ✓ Power down leakage current of <10uA
- ✓ Integrated low power 32-bit CPU could be used as application processor
- ✓ SDIO 1.1/2.0, SPI, UART
- ✓ STBC, 1x1 MIMO, 2x1 MIMO
- ✓ A-MPDU & A-MSDU aggregation & 0.4ms guard interval
- ✓ Wake up and transmit packets in < 2ms
- ✓ Standby power consumption of < 1.0mW (DTIM3)

III. RADIO FREQUENCY GENERATOR FOR IDENTIFYING ASSET

We are using radio frequency generator for identifying asset we have to track. We have to assign radio frequency generator to each asset that we want to track. Radio frequency signal generators (RF signal generators) are a particularly useful item of test equipment widely used in RF microwave design and test applications. These microwave and RF signal generators are available a range of forms and with a number of facilities and capabilities. so as to realize the foremost from any RF signal generator or microwave signal generator, it's necessary to own

Associate in Nursing understanding of its operation and therefore the capabilities it possesses.

RF signal generator operation

In order to understand the operation of a generic microwave or RF signal generator it is useful to understand what is included in terms of a basic block diagram.

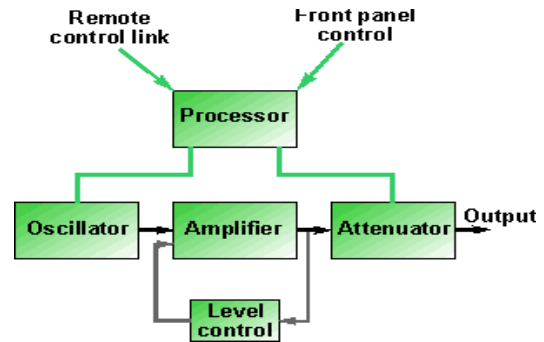


Figure 2. Block diagram for a generic RF signal generator

IV. BLOCK DIAGRAM

Following figure shows the block diagram of the system. First block is power supply block which provide 12.0V—1.0A power to the control circuit. Second block is a rectifier for providing the DC current to the circuit. Third block is a regulator which is responsible for providing seamless power supply to the circuit. Fourth block is a wi-fi module which is responsible for connecting the control circuit to the internet and IOT. RFTX 1, RFTX 2, RFTX 3, RFTX 4 are the radio devices that are going to be monitor. LCD display is used for showing the messages to the user.

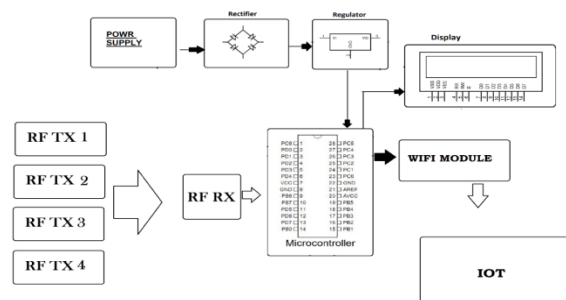


Figure 3. Block Diagram of the System

V. SYSTEM ARCHITECTURE

Following figure depicts the system architecture of Asset Tracking system. In which asset tracking area is a fixed decide area for monitoring the registered assets. This figure shows four asset that is asset 1, asset2, asset3, and asset4. Asset monitor unit responsible for scanning the devices and update to the IOT gecko over the internet.

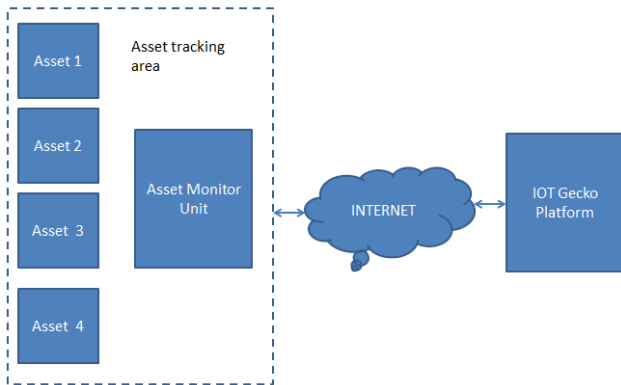


Figure 4. System Architecture

VI. WORKING FLOW OF THE SYSTEM

First we have to connect the control circuit to the IOT gecko platform via internet using wi-fi.

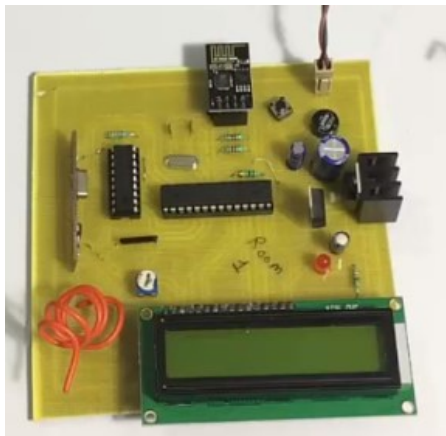


Figure 5. Control Circuit

Once we connect the control circuit to the IOT platform then it shows room like GUI on the platform shows in figure 6.



Figure 6. Visual representation for tracking assets

Afterward control circuit starts scanning the nearby devices. Those are radio devices one it found radio device that are registered to the system.

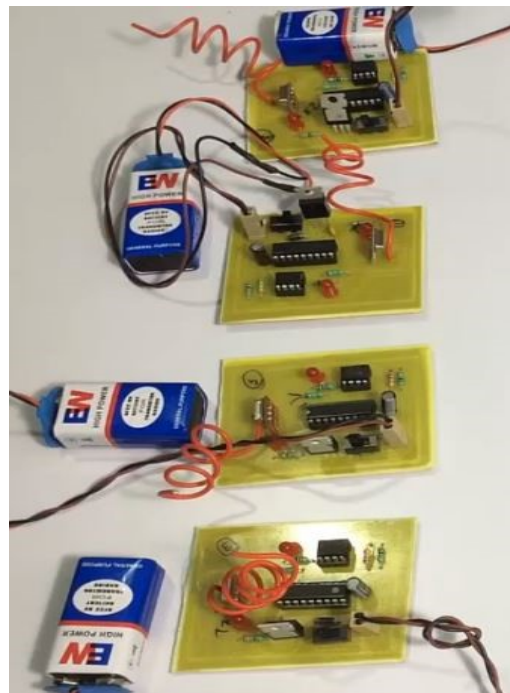


Figure 7. Radio Signal generator circuit.

Figure 7 shows the RFTX devices that are going to be monitor. System will update and shoes it on a IOT Gecko platform. Shows in figure 8.

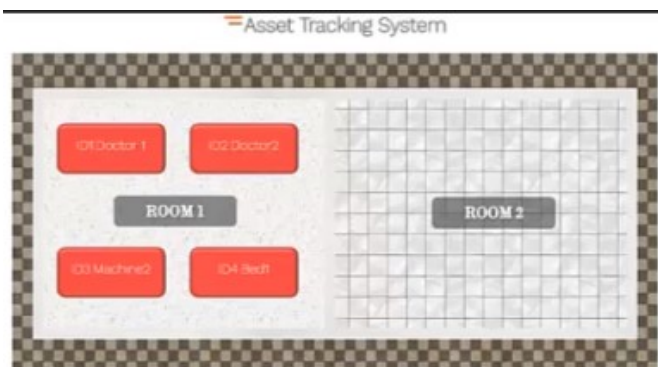


Figure 8. Monitoring of assets on IOT Gecko Platform

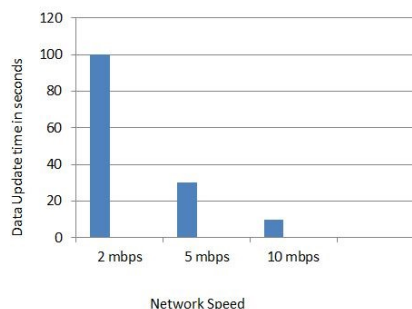


Figure 10. Result Analysis Graph

VII. RESULT GRAPH

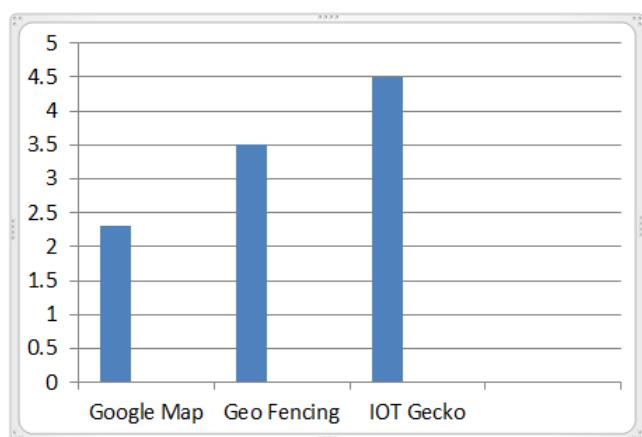


Figure 9. Result Graph

VIII. RESULT ANALYSIS GRAPH

This graph shows the performance of the system in various network range or network speed. If we have strong network speed then system response time is very good. If we have less network speed then system performance is less. As shown in a following graph. If we have 2mbps network speed then system response time is very less is near about 100 seconds. With the 5 mbps bandwidth we have 30 seconds response time. And with the 10 mbps bandwidth we have 10 seconds of response time.

IX. CONCLUSION

IOT Gecko is the simplified and easy way to track assets over the globe. We can track our asset from anywhere with the help of IOT gecko. This platform is free. We don't have pay for that. If we want some more extra services then we have perches premium version that is payable. We don't have to write server side code for our application.

X. REFERENCES

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