

Working of Internet of things with image learning

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Abstract— Internet of things is a very wide area topic because it is the combination of various fields. Like: Cloud, security, privacy and processing, real-time data & information flow with feedback. Internet is base to combine these all things. Learning and automatic communication between machines also known as internet of things. In this research paper, we will discuss that how IOT works in various fields and implement a program to show how internet of things concept start understanding process. E-commerce is totally based on the internet of things due to lot of sale purchase activities are performed simultaneously using real time data and information on different applications. This study also describes the connection and infrastructure of above said fields in Internet of Things.

Index Terms— Internet of things, cloud, security, privacy, Image Learning, Image recognition, real time data and information. Internet of things, cloud, security, privacy ,real time data and information.

1 INTRODUCTION

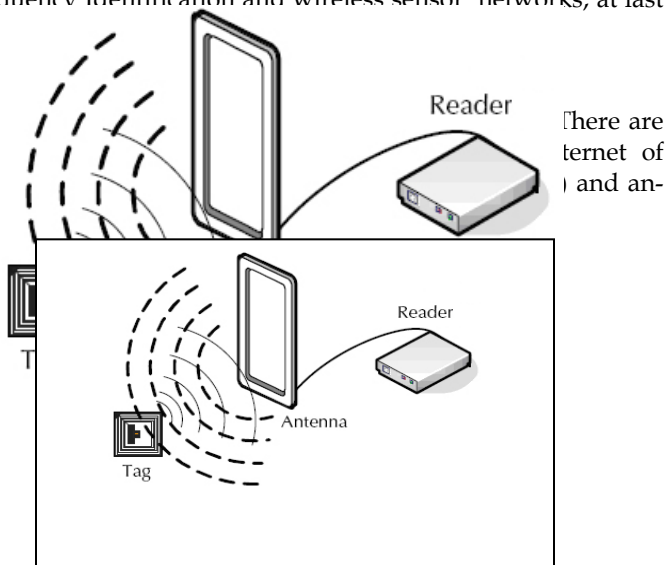
THE term internet of things is based upon the sense of network devices and data collection from the world wide and also share the same. Internet of Things" was first coined by the co-founder and Executive Director of MIT's Auto-ID lab, Kevin Ashton in the mid-1990s[1] physical devices are start functioning by capturing the information from first hand sense and multidimensional information without human interactive. In the real environment data collected on the cloud with security.

1.1 Sensors and connectivity

Sometimes sensors are used to generate information for new or a key source of knowledge to perform activities. These kinds of the resources enable users to gather large amount of data and converge information for further analysis. Example: - There are three components required in internet of things. 1, Connected thing 2, Connectivity and infrastructure with analytic and applications. These three things are working together to create a successful structure of IOT.

Connecting things: - Connecting data with storage and might be static or dynamic. Integrated and collaborated data or information sent to domain or applications services with Radio Frequency Identification and wireless sensor networks, at last kn

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RFID Scenario [2]

RFID work on frequency with the help of two devices antenna and reader. These frequencies are divided into four different frequency ranges.

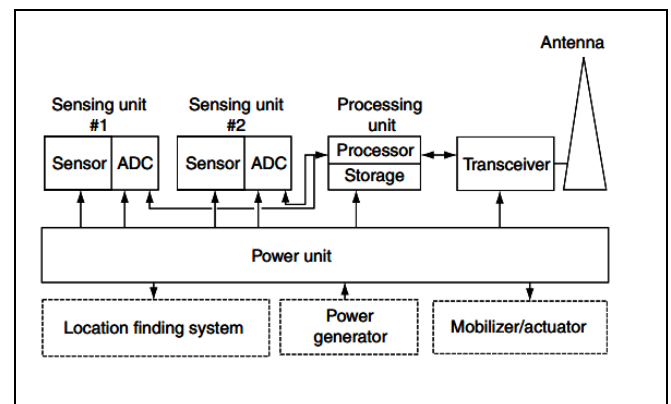
- (1) Low frequency (135KHz or less)
- (2) High Frequency (13.56MHz)
- (3) Ultra-High Frequency (862MHz 928MHz)
- (4) Microwave Frequency (2.4G , 5.80).

The working of bar code identification technique is almost same as RFID but RFID technology more effective than bar code. RFID work on frequency without any kind of hardware but bar code is optical techniques that cannot perform any activity with bar code reader. Wireless sensor network (WSN) is another technique to connect the sensor or start communication between machines.

1.3 Wireless Sensor Network (WSN)

Wireless sensor network (WSN) is another technique to connect the sensor or start communication between machines.

A WSN work on multi-hop fashion with bi-directional connected network of the sensors. The WSN sensor can communicate with multi-hop. Each and every sensor start working with, its own transceiver and inbuilt antenna, with the help of a micro-controller and a interface circuit of sensor [6].



A typical sensing node [2]

1.4 IOT Machine Communication

IOT also called as machine to machine communication. This is a vast and diverse market place with lot of confusion. Like, how it works, about security etc. First author create differentiate between area and market place weather the system is really just a remote control for machine or it is directed by any person and machine reporting with the help of applications, IOT make a smart mastery, energetic marketing, smart-cities, smart health care's and smart parking etc.[7] LITERATURE REVIEW

2.1 LITERATURE REVIEW & RELATED WORK

Vandana Sharma in [3] describes a review paper in internet of Things and its smart applications. Universal global neural network connecting the various thing to start the IOT. The IOT is the combination the intelligent connected devices which can be communicate with each other, through sensors or another medium without human interaction. In this review work author present a model of internet of things based upon E-Advertisement system application in shopping malls and other organizations. This application can also be used for educational notice board system and at railway station or any kind of public place for notification. A city is also called as smart city which is under IOT frequency.

-SmartAppss: to make a smart city all place should be connected with each other using any kind of media. Like, monitoring the availability of parking area in city, building, bridges, historical mounts, vehicles, walking routes etc. Similar applications should be used in emergency, smart agriculture, home automation, Medical field, Industrial con-troll. This prototype model the author will implement using virtual components.

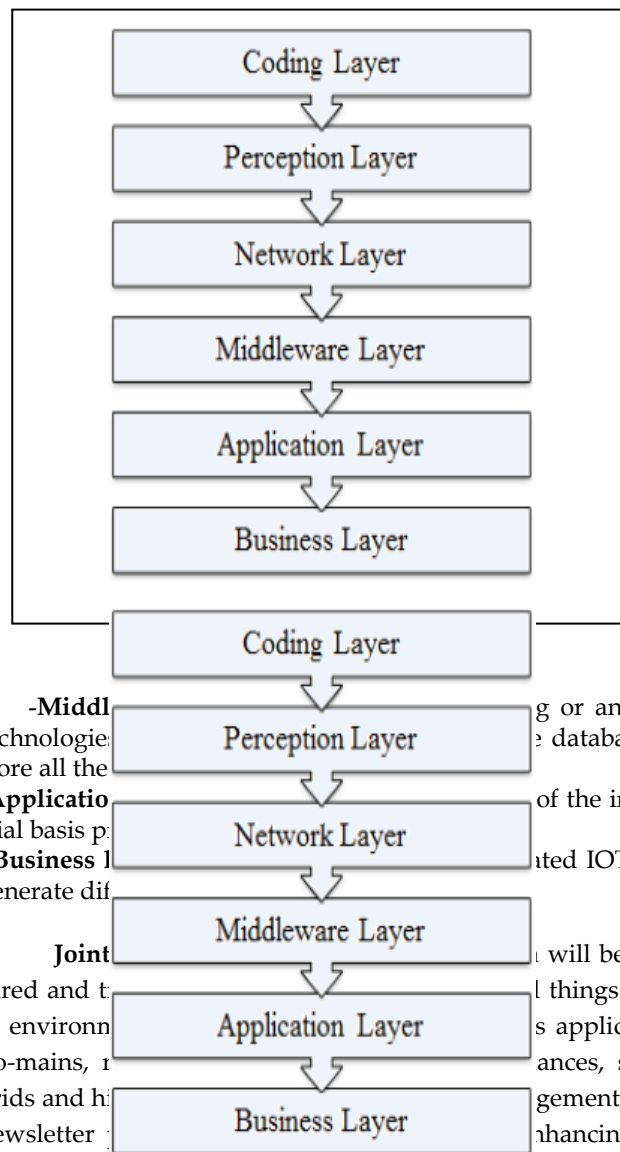
M.U. Farooq [2] describes a comprehensive overview of internet of things using another technologies, scenario and wireless or wired sensor network. This paper also describes a six layered architecture of IOT. As we know the working of TCP/IP protocol, same as in big amount of data in IOT which need a new open architecture with high security and quality of services. It also follows the existing network applications.

Coding layer- It is the foundation of IOT which provides the objects of interest using identification.

-perception layer provide a physical meaning to each and every object.

- Network layer used to receive the essential information in the digital form or signals from the upper and forward the same to middleware layer to the network media.

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-Middle technologies: store all the
-Applicatio of the indu-
-Business generate dif
Joint will be cap-
to environn l things react
do-mains, i s applicaon
grids and h gences, smart
newsletter gement. This
 nancing the
 present stance of IOT by incorporating security and privacy into its design and implementation.

-physical devices and sensors means without human interaction sensors collect data through automatic or multi-dimensional way.

-Devices capture the information and also embedded with neural network. Devices start modifies them and respond differently.

-Connection and infrasturture: this is the combination of the storage security, data processing, privacy detection, real time data and information follow.

-Cloud: this is a platform of information or knowledge which is used to transfer or receive the same according the functionality of the users.



Cloud and Computing Scenario

A Social media: this media work on the individuals in the new or unexpected way between transferring interaction & communication nodes.

Mobile devices/ Things: these are the platform for social communication and network in the both personal and work spheres. Data collection and transformation should be perform in speed, scale and multi-dimensional ways, so that simultaneously data can be received or delivered.

Security and privacy: - This is an essential part of IOT because very personal data send to the server and get back to the users. So it is the responsibilities of the application provider, it must be secure. Findings from TRUST Internet of Things Privacy Index reveal that UK consumers comfort level varies widely depending on responsibility, ownership and usage of collected personal data.

Martijn Hoogen down in [6]," The IOT is a set of metaphor system which acquire information with decision making and control over the physical world by human intermediation dramatically reduced equipping distributed system.

Four Compassable activities for IOT consists:- 1,Acquiring data 2,Processing information 3, Storing information 4,Publishing insights.

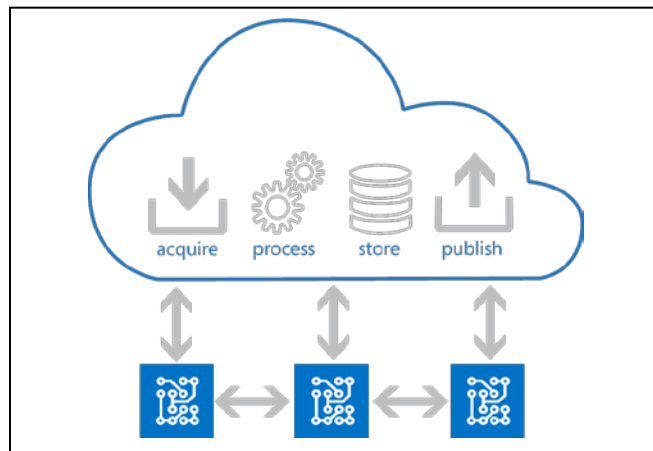
-Acquiring data: sensors are used to collect the data from the physical worked.

-Processing information: means it takes the action on the collected data by the sensors.

- Storing information: with the help of context and historical information sensor enable to analysis, broadcasting and insight-driven decision making.

- Publishing insights: The collected data combined with internal and external data then it start learned and acted

-Virtual private networks: It acts as virtual network on the both ends of the connections. Combining the network into a single entity.



Foundational activities, composable within and between devices and systems

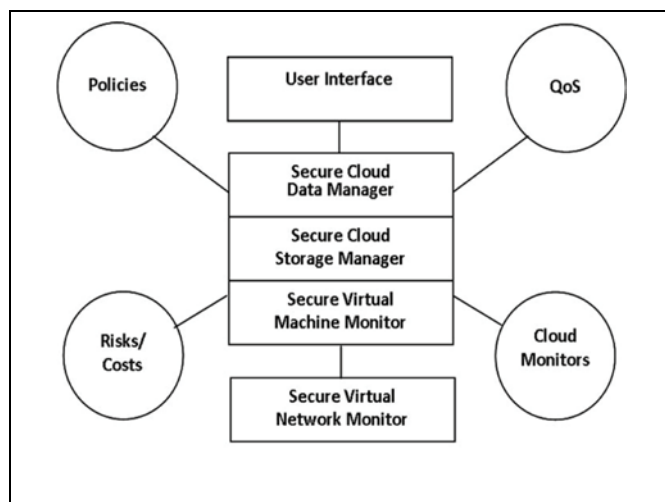
There are two networks are connected in this image, after connecting the VPN provide access to the all layers.

Kevin Hamlen discuss [10] the security issues in the cloud computing and present a layered framework for secure could computing including the virtualization, resources scheduling, operation system, database and networks. Data security in involved encrypting the data as well as appropriate policies with recourses allocation and memory management algorithm.[10]

-The paper describes way of efficiently storing data in machine.

-Quering encrypted data on the cloud.

-Secure query processing of the data.



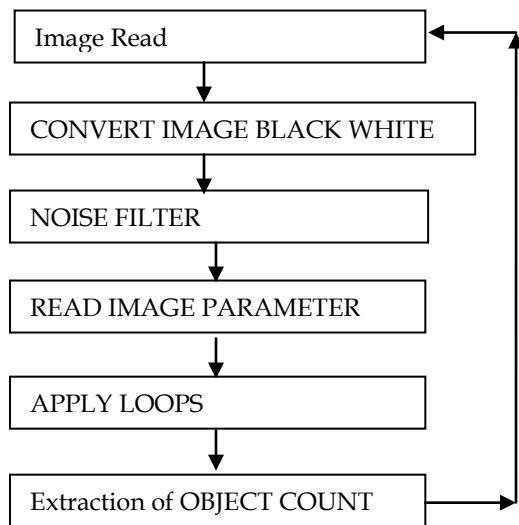
LAYERED FRAMEWORK FOR ASSURED CLOUD

- The paper describe ways of efficiently storing data in machines
- Querying encrypted data on the cloud.
- Secure query processing of the data.

3 METHODOLOGY AND WORKING

MATLAB is a high-representation language for technical performance. It integrates computation, contemplate, and programming in an easy-to-working area where problems and solutions are state in familiar notations. Standard utilize are following:

- Mathematics and estimate.
- Creating algorithms
- Data obtain.
- Modeling and prototyping
- Data analysis and contemplate



WORK Follow:-

- imread: Read image from graphics file
 - imshow: Display image
 - im2bw: Convert image to binary image, based on threshold
 - imfill: Fill image regions and holes
 - bwlabel: Label connected components in 2-D binary image
 - regionprops: Measure properties of image regions
 - Centroid: Count the center point of the coin
- 6 Helpful Hints

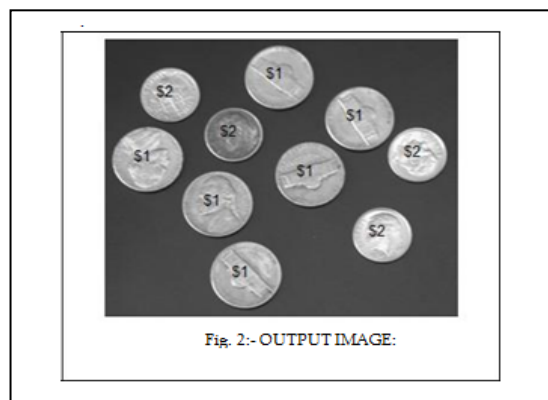
The basic objective of this coding is to count the object from the specific image. Object recognition is based on the objective and subjective dimensions where the objectivity is guided by the parameters like color, texture, shape, size, coordinate and scale

whereas the subjectivity is guided by the perception and cognition of the image interpreters

```

coin1 = im2bw(imread('d:/coins.png'));
coin2 = imfill(coin1,'holes');
[L Ne]=bwlabel(double(coin2));
prop=regionprops(L,'Area','Centroid');
total=0;
imshow(imread('coins.png'));
hold on
for n=1:size(prop,1)
doll=prop(n).Centroid;
X=doll(1);
Y=doll(2);
if prop(n).Area>2000
text(X-10,Y,'$1')
total=total+1;
else
total=total+2;
text(X-10,Y,'$2')
end
end
number = n
dollar = total
hold on
title(['Dollars: $',num2str(dollar),' ', 'Number of
coins:',num2str(n)])
    
```

Processing Image:-



4 CONCLUSION

Internet of things is vast field because it is the combination of the various topics. As discuss in this research paper, Communication of machines with each other using the sensors technology without human interaction. It depends upon the neural network, that means machines learning themselves and react differently by every new learning. Moreover this, all the real data is stored on the cloud with security. Could computing and security is the combination of devices and networking secure device. In this paper, we can conclude that we can count object in the grey scale. This project includes the mechanism of count object in grey scale image using some useful technique in the project. In this we work only for the grey scale images and using few commands we can count object in the grey scale image. So it concludes that object counting in MATLAB is very powerful tool to count the object in grey scale images.

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