Faculty of engineering - Shoubra
Benha University

Research Article / Research Project / Literature Review

in fulfillment of the requirements of

Department	Engineering Mathematics and Physics
Division	----------
Academic Year	2019-2020 Preparatory
Course name	Computer
Course code	ECE001

Title: -

Internet of Things

By:

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Approved by:

Examiners committee	Signature
Dr.Ahmed Bayoumi	
Dr.Shady Elmashad	
Dr. Abdelhamid Attaby	

Project link: https://github.com/shymaasaid/html-project

Website link: https://shymaasaid.github.io/html-project/index.html

Abstract

We're entering a new era of computing technology that many are calling the Internet of Things (IoT). Machine to machine, machine to infrastructure, machine to environment, the Internet of Everything, the Internet of Intelligent Things, intelligent systems, call it what you want, but it's happening, and its potential is huge. the Internet of things (IoT) is the extension of Internet connectivity into physical devices and everyday objects. Embedded with electronics, Internet connectivity, and other forms of hardware (such as sensors), these devices can communicate and interact with others over the Internet, and they can be remotely monitored and controlled

Table of contents

Divide your research into sections or subjects, mention each section first page at this table

Introduction

Basically, IoT is a network in which all physical objects are connected to the internet through network devices or routers and exchange data. IoT allows objects to be controlled remotely across existing network infrastructure. IoT is a very good and intelligent technique, which reduces human effort as well as easy access to physical devices. This technique also has autonomous control feature by which any device can control without any human interaction. And “Things” can refer to a wide variety of devices such as DNA analysis devices for environmental monitoring, electric clamps in coastal waters, Arduino chips in home automation and many other. These devices gather useful data with the help of various existing technologies and share that data between other devices. Examples include Home Automation System, which uses Wi-Fi or Bluetooth for exchange data between various devices of home.

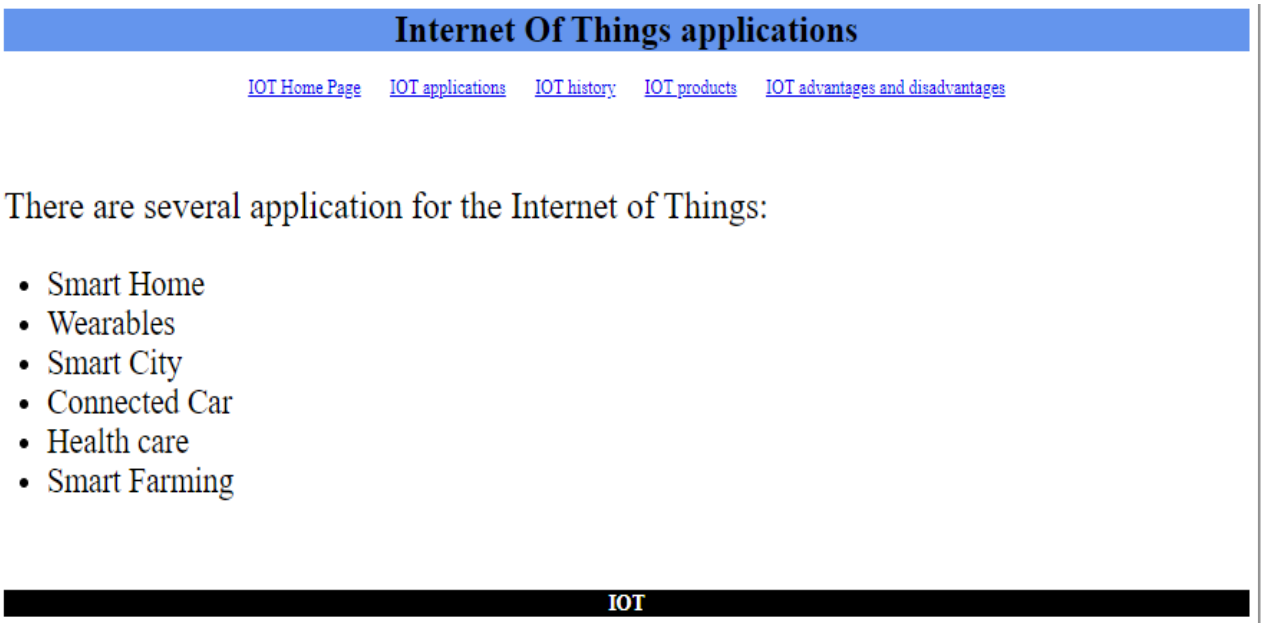
Literature Review

Using HTML I have build a website the show some data about IOT. This website consist of 5 pages as follows (home – IOT application – IOT history – IOT products - IOT advantages and disadvantages).

1- Home page :


```
<html>
 <title>IOT</title>
<body style="background-color:white;">
 <h1 style="text-align:center; background-color:CornflowerBlue; ">Internet Of Things (IOT)</h1>
<center>
 <a href="index.html" style="padding: 1%;">IOT Home Page</a>
 <a href="iotapplications.html" style="padding: 1%;">IOT applications</a>
 <a href="iothistory.html" style="padding: 1%;">IOT history</a>
 <a href="iotproducts.html" style="padding: 1%;">IOT products</a>
 <a href="iotcomparison.html" style="padding: 1%;">IOT advantages and disadvantages</a>
 <br><br>
 </center>
 <br>
<center>
 <img src="iot.jpg">
 </center>
<p style="font-size:170%; margin-right: 120px;margin-left: 120px;">
Basically, IoT is a network in which all physical objects are connected to the internet through network devices or routers and exchange data. IoT allows objects
 </p>
<center>
 <img src="iot2.png" class="center" width="600" height="400">
 </center>
<p style="font-size:170%; margin-right: 120px;margin-left: 120px;">
The above figure shows the connectivity of various devices of different fields with Internet and exchange data between them. So above figure represent the connec
"Things" in the IoT sense, is the mixture of hardware, software, data, and services. "Things" can refer to a wide variety of devices such as DNA analysis devices
 </p>
 <br><br>
<center>
<h3 style="color:white; background-color:black;">
IOT
 </h3>
 </center>
 </body>
 </html>
```

2- Applications page




```
<html>
<title>IOT</title>

<body style="background-color:white;">
<h1 style="text-align:center; background-color:CornflowerBlue; ">Internet Of Things applications</h1>

<center>
<a href="index.html" style="padding: 1%;">IOT Home Page</a>
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<br><br>
</center>
<br>
<p style="font-size:200%;">
There are several application for the Internet of Things:
</p>
<ul>
  <li style="font-size:180%;">Smart Home</li>
  <li style="font-size:180%;">Wearables</li>
  <li style="font-size:180%;">Smart City</li>
  <li style="font-size:180%;">Connected Car</li>
  <li style="font-size:180%;">Health care</li>
  <li style="font-size:180%;">Smart Farming</li>
</ul>
</p>
<br><br>
<center>
<h3 style="color:white; background-color:black;">
IOT
</h3>
</center>
</body>
</html>
```

3- IOT history page

Internet Of Things (IOT)

IOT Home Page IOT applications IOT history IOT products IOT advantages and disadvantages

The Internet of Things, as a concept, wasn't officially named until 1999. One of the first examples of an Internet of Things is from the early 1980s, and was a Coca Cola machine, located at the Carnegie Melon University. Local programmers would connect by Internet to the refrigerated appliance, and check to see if there was a drink available, and if it was cold, before making the trip. By the year 2013, the Internet of Things had evolved into to a system using multiple technologies, ranging from the Internet to wireless communication and from micro-electromechanical systems (MEMS) to embedded systems. The traditional fields of automation (including the automation of buildings and homes), wireless sensor networks, GPS, control systems, and others, all support the IoT.

Kevin Ashton, the Executive Director of Auto-ID Labs at MIT, was the first to describe the Internet of Things, while making a presentation for Procter & Gamble.

IOT

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<br><br>
</center>
<br>
<p style="text-align:left; font-size:160%; ">
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</p>
<p style="text-align:left; font-size:160%; color: green;" >
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</p>
<center>
<img src="kevin.jpg" >
<br><br>
<center>
<h3 style="color:white; background-color:black;">
IOT
</h3>
</center>
```

4- IOT products page:

Internet Of Things products

IOT Home Page | IOT applications | IOT history | IOT products | IOT advantages and disadvantages

IoT devices are basically smart devices which have support for internet connectivity and are able to interact with the other devices over the internet and grant remote access to a user for managing the device as per their need. this is a list with some IOT products:

1. Google Home Voice Controller
2. Belkin WeMo Smart Light Switch
3. Philips Hue Bulbs and Lighting System
4. Garageio - Garage door automation
5. Prodigio - Connected espresso machine

IOT

```
<html>
<title>IOT</title>
<body style="background-color:white;">
<h1 style="text-align:center; background-color:CornflowerBlue; ">Internet Of Things products</h1>
<center>
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</center>
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</p>
<ol style="font-size:170%; margin-right: 120px;margin-left: 120px; color:red;">
  <li>Google Home Voice Controller</li>
  <li>Belkin WeMo Smart Light Switch</li>
  <li>Philips Hue Bulbs and Lighting System</li>
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</ol>
<br><br>
<center>
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IOT
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</center>
</body>
</html>
```

Results and discussion

Applications of IOT :

IoT applications are expected to equip billions of everyday objects with connectivity and intelligence. It is already being deployed extensively, in various domains, such as:

Wearables:
Wearable technology is a hallmark of IoT applications and probably is one of the earliest industries to have deployed the IoT at its service. We happen to see Fit Bits, heart rate monitors and smartwatches everywhere these days.

Smart Home Applications:
When we talk about IoT Applications, Smart Homes are probably the first thing that we think of. The best example I can think of here is *Jarvis*, the AI home automation employed by Mark Zuckerberg. There is also Allen Pan's Home Automation System where functions in the house are actuated by use of a string of musical notes. The following video could give you a better idea.

Health Care:
IoT applications can turn reactive medical-based systems into proactive wellness-based systems. The resources that current medical research uses, lack critical real-world information. It mostly uses leftover data, controlled environments, and volunteers for medical examination. IoT opens ways to a sea of valuable data through analysis, real-time field data, and testing. The Internet of Things also improves the current devices in power, precision, and availability. IoT focuses on creating systems rather than just equipment.

Smart Cities:
By now I assume, most of you must have heard about the term Smart City. The hypothesis of the optimized traffic system I mentioned earlier, is one of the many aspects that constitute a smart city. The thing about the smart city concept is that it's very specific to a city. The problems faced in Mumbai are very different than those in Delhi. The problems in Hong Kong are different from New York. Even global issues, like finite clean drinking water, deteriorating air quality and increasing urban density, occur in different intensities across cities. Hence, they affect each city differently.

Conclusions

Internet of Things (IoT) is the key to the next phase of the industrial revolution. Technology allows physical devices to be brought into the digital domain. IoT is the idea of the fusion of the "real world" with the "digital world", making the individual be in constant communication and interaction, either with other people or objects. With the Internet of things, objects can be activated and controlled remotely. IoT is not science fiction anymore, the power of internet connectivity has gone beyond smartphones and computers. Now, the internet is been used in all smart devices which are aimed to resolve actual real-world problems, from smartwatches to driverless.