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Chapter 1 : The History of IoT- Internet of Things Recruiting

JFK Files Released: Assassination Secrets, Conspiracy Theories, and History Revealed. After years of anticipation, a series of documents related to the investigation of President John F. Kennedy's assassination have been released.

History[edit] The definition of the Internet of things has evolved due to convergence of multiple technologies, real-time analytics , machine learning , commodity sensors, and embedded systems. The extensive set of applications for IoT devices [24] is often divided into consumer, commercial, industrial, and infrastructure spaces. A smart home or automated home could be based on a platform or hubs that control smart devices and appliances. These features can include sensors that monitor for medical emergencies such as falls or seizures. By , it is estimated that EIoT will account for 9. These health monitoring devices can range from blood pressure and heart rate monitors to advanced devices capable of monitoring specialized implants, such as pacemakers, Fitbit electronic wristbands, or advanced hearing aids. It can also adjust itself to ensure appropriate pressure and support is applied to the patient without the manual interaction of nurses. IoMT in the healthcare industry is now permitting doctors, patients and others involved i. This includes sensor-based solutions such as biosensors, wearables, connected health devices and mobile apps to track customer behaviour. This can lead to more accurate underwriting and new pricing models. The IoT can assist in the integration of communications, control, and information processing across various transportation systems. Application of the IoT extends to all aspects of transportation systems i. Dynamic interaction between these components of a transport system enables inter and intra vehicular communication, [56] smart traffic control , smart parking, electronic toll collection systems , logistic and fleet management , vehicle control , and safety and road assistance. If combined with Machine Learning then it also helps in reducing traffic accidents by introducing drowsiness alerts to drivers and providing self driven cars too. Building and home automation[edit] IoT devices can be used to monitor and control the mechanical, electrical and electronic systems used in various types of buildings e. In this context, three main areas are being covered in literature: Based on such a highly integrated smart cyberphysical space, it opens the door to create whole new business and market opportunities for manufacturing. Measurements, automated controls, plant optimization, health and safety management, and other functions are provided by a large number of networked sensors. IIoT in manufacturing could generate so much business value that it will eventually lead to the fourth industrial revolution, so the so-called Industry 4. It is estimated that in the future, successful companies will be able to increase their revenue through Internet of things by creating new business models and improve productivity, exploit analytics for innovation, and transform workforce. Among all the technologies, predictive maintenance is probably a relatively "easier win" since it is applicable to existing assets and management systems. The objective of intelligent maintenance systems is to reduce unexpected downtime and increase productivity. Cyber-physical systems can be designed by following the 5C connection, conversion, cyber, cognition, configuration architecture, [65] and it will transform the collected data into actionable information, and eventually interfere with the physical assets to optimize processes. However, without sensing and intelligent analytics, it can be only determined by experience when the band saw belt will actually break. The developed prognostics system will be able to recognize and monitor the degradation of band saw belts even if the condition is changing, advising users when is the best time to replace the belt. This will significantly improve user experience and operator safety and ultimately save on costs. This data can be used to automate farming techniques, take informed decisions to improve quality and quantity, minimize risk and waste, and reduce effort required to manage crops. For example, farmers can now monitor soil temperature and moisture from afar, and even apply IoT-acquired data to precision fertilization programs. Developed in part by researchers from Kindai University , the water pump mechanisms use artificial intelligence to count the number of fish on a conveyor belt , analyze the number of fish, and deduce the effectiveness of water flow from the data the fish provide. IoT can benefit the construction industry by cost saving, time reduction, better quality workday, paperless workflow and increase in productivity. It can help in taking faster decisions and save money with Real-Time Data Analytics. It can also be used for scheduling repair and maintenance activities in an efficient

manner, by coordinating tasks between different service providers and users of these facilities. Usage of IoT devices for monitoring and operating infrastructure is likely to improve incident management and emergency response coordination, and quality of service , up-times and reduce costs of operation in all infrastructure related areas. For example, Songdo , South Korea, the first of its kind fully equipped and wired smart city , is gradually being built, with approximately 70 percent of the business district completed as of June [update]. Much of the city is planned to be wired and automated, with little or no human intervention. For this deployment, two approaches have been adopted. This city of , inhabitants has already seen 18, downloads of its city smartphone app. The app is connected to 10, sensors that enable services like parking search, environmental monitoring, digital city agenda, and more. City context information is used in this deployment so as to benefit merchants through a spark deals mechanism based on city behavior that aims at maximizing the impact of each notification. The network was designed and engineered by Fluidmesh Networks, a Chicago-based company developing wireless networks for critical applications. With the wireless network in place, NY Waterway is able to take control of its fleet and passengers in a way that was not previously possible. New applications can include security, energy and fleet management, digital signage, public Wi-Fi, paperless ticketing and others. IoT devices in this application typically span a large geographic area and can also be mobile. IoT creates opportunities for more direct integration of the physical world into computer-based systems, resulting in efficiency improvements, economic benefits, and reduced human exertions. Ambient intelligence and autonomous control do not necessarily require Internet structures, either. However, there is a shift in research by companies such as Intel to integrate the concepts of IoT and autonomous control, with initial outcomes towards this direction considering objects as the driving force for autonomous IoT. Modern IoT products and solutions in the marketplace use a variety of different technologies to support such context-aware automation, but more sophisticated forms of intelligence are requested to permit sensor units and intelligent cyber-physical systems to be deployed in real environments. The specific problem is: The information is partially outdated, unclear, and uncited. WikiProject Technology may be able to help recruit an expert. July IIoT system architecture, [] in its simplistic view, consists of three tiers: Tier 2 includes sensor data aggregation systems called Edge Gateways that provide functionality, such as pre-processing of the data, securing connectivity to cloud, using systems such as WebSockets, the event hub, and, even in some cases, edge analytics or fog computing. Tier 3 also includes storage of sensor data using various database systems, such as time series databases or asset stores using backend data storage systems such as Cassandra or Postgres. In addition to the data storage, we analyze the data using various analytics, predictive or threshold-based or regression-based, to get more insights on the IIoT equipment. Building on the Internet of things, the web of things is an architecture for the application layer of the Internet of things looking at the convergence of data from IoT devices into Web applications to create innovative use-cases. In order to program and control the flow of information in the Internet of things, a predicted architectural direction is being called BPM Everywhere which is a blending of traditional process management with process mining and special capabilities to automate the control of large numbers of coordinated devices. With billions of devices [] being added to the Internet space, IPv6 will play a major role in handling the network layer scalability. Fog computing is a viable alternative to prevent such large burst of data flow through Internet. At the overall stage full open loop it will likely be seen as a chaotic environment since systems always have finality. As a practical approach, not all elements in the Internet of things run in a global, public space. Subsystems are often implemented to mitigate the risks of privacy, control and reliability. For example, domestic robotics domotics running inside a smart home might only share data within and be available via a local network. Human beings in surveyed urban environments are each surrounded by to trackable objects. This number is about to grow up to million devices in and will for sure go on growing in the near future. Note that some things in the Internet of things will be sensors, and sensor location is usually important. However, the challenges that remain include the constraints of variable spatial scales, the need to handle massive amounts of data, and an indexing for fast search and neighbor operations. In the Internet of things, if things are able to take actions on their own initiative, this human-centric mediation role is eliminated. Thus, the time-space context that we as humans take for granted must be given a central role in this information ecosystem. Just as standards play a key role in

the Internet and the Web, geospatial standards will play a key role in the Internet of things. Others are turning to the concept of predictive interaction of devices, "where collected data is used to predict and trigger actions on the specific devices" while making them work together. Crucial to the field is the network used to communicate between devices of an IoT installation, a role that several wireless or wired technologies may fulfill: The objects themselves do not converse, but they may now be referred to by other agents, such as powerful centralized servers acting for their human owners. Due to the limited address space of IPv4 which allows for 4. To a large extent, the future of the Internet of things will not be possible without the support of IPv6; and consequently, the global adoption of IPv6 in the coming years will be critical for the successful development of the IoT in the future. Light-Fidelity Li-Fi â€" Wireless communication technology similar to the Wi-Fi standard, but using visible light communication for increased bandwidth. QR codes and barcodes â€" Machine-readable optical tags that store information about the item to which they are attached. Radio-frequency identification RFID â€" Technology using electromagnetic fields to read data stored in tags embedded in other items. Transport Layer Security â€" Network security protocol. Medium-range wireless[edit] LTE-Advanced â€" High-speed communication specification for mobile networks. Provides enhancements to the LTE standard with extended coverage, higher throughput, and lower latency. Long-range wireless[edit] Low-power wide-area networking LPWAN â€" Wireless networks designed to allow long-range communication at a low data rate, reducing power and cost for transmission.

Chapter 2 : The Insane History Of 30 Things You Use Every Day

Considering how much we use the Internet of Things term we thought it would be helpful to look at the origin of the term and who were some of the important people and projects that helped move it from its first glimpses into today's trending topic. An electromagnetic telegraph was created.

Share Shares When people think of ancient civilizations, a lack of technological advancement and a primitive lifestyle are usually the first things that come to mind. However, many of the everyday things that we take for granted were actually invented long ago. Here are 10 things which were first thought of hundreds or thousands of years in the past. Because of a limited amount of symbols they only had two, along with their indicator for zero , they had to innovate, creating a system where one column indicated multiples of 1, one column indicated multiples of 60, and one column indicated multiples of 3, These columns were only separated by a small space, so attention to detail was important. Once they had their number system in place, the Babylonians began applying it to various aspects of their life, such as the number of degrees in a circle and the number of days in a year. Since their system was much easier to calculate and divide, the Babylonian numbers reigned supreme over those of other nations, remaining the favored system for astronomers up to the 16th century. Eventually, thanks to its divisibility, the base system was applied to the concept of time, giving us the number of minutes in an hour and the number of seconds in a minute. Placed over the breasts, it would restrict their movement, making athletics a little easier. For the exhibitionists in society, it could be worn underneath the breasts, emphasizing them like a Wonderbra. Another piece of cloth known as a strophion could be worn over the clothes , providing the same type of support as an apodesmos. Both garments were normally made of wool or linen, and they were usually tied or pinned in the back. Various statues have been found depicting the goddess Aphrodite wearing an apodesmos, leading some to believe that thinner versions may have had an erotic connotation. Faced with the odor resulting from bacterial growth and tooth decay, they developed the first breath mints: First mentioned in the Ebers Papyrus, a 16th-century-B. Used in religious ceremonies as well as for medicinal reasons, the recipes for kyphi normally had a number of things in common, especially wine, honey, and raisins. Unfortunately, a few of them have listed ingredients which we have been unable to correctly identify. As far back as the first century B. In these books, historians detail how he was forced to the roof of a tall building by his father, who intended to kill him by burning the building underneath him. Grabbing a pair of bamboo hats , Shun slowly descended to the ground, laying the framework for the idea of using wind resistance to slow a fall. Later stories talk about thieves escaping their would-be jailors by leaping off tall buildings and, as early as B. When Columbus first interacted with the Arawak tribe, he was given a popcorn corsage. Believed to be a key component in the foundation of their empire, popcorn played a large role in Aztec culture. It was often made into necklaces or headdresses, and it was commonly used to decorate religious statues. One Aztec ritual involved throwing a whole ear of un-popped popcorn into a fire as a sacrifice to the gods. Using seed selection, an agricultural process to determine the healthiest future crop, Native Americans are thought to have developed the crop almost 5, years ago. Anagoria A useful tool for measuring distance traveled, the odometer is believed to have been invented by an ancient Roman named Vitruvius. Mainly remembered as an architect, he came up with the idea for what he called a hodometer in the first century B. A stone would then be dropped into a box, indicating that a Roman mile had just been traveled. However, some archaeologists maintain that such a design would have been impossible for the Romans to actually manufacture, given their inexperience with metalworking. More recently, Andre Sleeswyck, writing for Scientific American, reported that he was able to reconstruct it successfully. Various other claims have been made from China and Egypt, but they are not as reliable as those we have for Assyria. The Greek historian Xenophon wrote about Cyrus the Great , the leader of the Persian Empire which controlled Assyria, and how, throughout the empire, there was a collection of couriers who would ferry letters back and forth between predetermined outposts in each city. It was a relay system, enabling fresh couriers to take over at each stop. What separates the Egyptian lock from later inventions is the fact that the whole thing was made out of wood, the key included. In fact, the basic idea for a lockâ€”the pin tumblerâ€”is still the most

common type used today. There was one minor difference between their keys and ours though: Theirs were nearly a foot long , which made it much harder for would-be thieves to pick the locks. A simple latch or bolt normally sufficed, but this new system enabled places to be cordoned off, making actual security guards unnecessary. Also, the door could only be locked or unlocked from the outside, and a bolt was used to do the actual locking. Basically, a box had a slot in which the person would drop a coin. The coin would then hit a metal lever, which would act like a teeter-totter of sorts, moving the plug away from the holy water dispenser. Once the coin fell, the stream would be cut off. Ctesibius of Alexandria is probably the next most likely inventor. A pit up to 5, cubic meters , cu ft in volume would then be dug underneath it. Using a process known as evaporative cooling, wind would blow into the pit, chilling any water which was brought in or left behind by melting ice. The ice itself was made in channels that extended behind the yakhchals that were filled with water at night, when temperatures dropped below freezing. The ice that formed at the top of the channels was then chipped off and put into the yakhchal. Known to the inhabitants of present-day Iran since as far back as the 17th century B. Though fairly efficient in their ability to store ice, yakhchals quickly fell out of favor when electric refrigeration was invented. Modern freezers also tended to produce much cleaner ice, as dust and other contaminants would often enter the water in a yakhchal. This is probably due to the fact that they were normally made of brick and mud.

Chapter 3 : A Brief History Of The Internet Of Things [Infographic] - PSFK

The Internet of Things (IoT) has not been around for very long. However, there have been visions of machines communicating with one another since the early s. Machines have been providing direct communications since the telegraph (the first landline) was developed in the s and s.

Its development depends on the dynamic technical innovation in a number of important fields, from wireless sensors to nanotechnology. IoT is a foundation for connecting things, sensors, actuators, and other smart technologies, thus enabling person-to-object and object-to-object communications. Connections will multiply and create an entirely new dynamic network of networks, which forms the IoT. While RFID was initially developed with retail and logistics applications in mind in order to replace the bar code, developments of active components will make this technology much more than a simple identification scheme. It is expected in the near future that a single numbering scheme, such as IPv6, will make every single object identifiable and addressable. For example, sensor technologies are being used to test the quality and purity of different products, such as coffee in Brazil and beef in Namibia. However, the security and privacy issues need to be considered. To promote a more widespread adoption of the technologies underlying the IoT, principles of informed consent, data confidentiality and security must be safeguarded. Architecture standards should consist of well-defined abstract data models, interfaces and protocols, together with concrete bindings to neutral technologies such as XML, web services etc. Like the Internet, the IoT architecture should be designed to be resilient to disruption of the physical network and should also anticipate that many of the nodes will be mobile, and they may have intermittent connectivity also they may use various communication protocols at different times to connect to the IoT. Anticipating the vast volumes of data which may be generated, it is important that the architecture also includes mechanisms for moving intelligence and capabilities for filtering, pattern recognition, machine learning and decision-making towards the very edges of the network to enable distributed and decentralized processing of the information, either close to where data is generated or remotely located in the cloud. The architectural design will also need to enable the processing, routing, storage and retrieval of events as well as allows for disconnected operations e. Effective caching, pre-positioning and synchronization of requests, updates and data flows need to be an integral feature of the architecture. By developing and defining the architecture in terms of open standards, we can expect increased participation from solution providers of all sizes and a competitive marketplace that benefits end users. In summary, the following issues have to be addressed: Besides numerous address spaces, the differences between IPv6 and IPv4 are in five major areas: IPv6 also offers remarkable capability in the area of multicasting technologies. Another goal of this address space expansion is to improve the connectivity, reliability, and flexibility. The additional address space is also helpful in the core of Internet by reducing the size and complexity of the global routing tables. Address Auto-Configuration[edit] IPv6 Auto-Configuration feature reduces the total time that use to configuring and managing the systems. IPv6 improves communication and eliminates the need for NAT, through its automated configuration capabilities. As its name suggests, Mobile IP allows a device to roam from one network to another without losing their established IP addresses. This optimizes media streaming applications and allowing more data transmission to millions of locations. In this respect, sensors have a special role in the IoT paradigm. In the IoT, sensors are the edge of the electronics ecosystem. This allows a richer array of data, other than data available from keyboard and mouse inputs. Currently, the internet is full of information that has been input by someone at the keyboard. But the concept of Internet of Things will change that, because we are at an inflexion point where more Internet data originates from sensors rather than keyboard inputs. A sensor is a device that can measure a physical quality and converts that physical quantity into a signal that can be read by an instrument or an observer. In the idea of the Internet of Things, the ability to detect changes in the physical status of things is also essential for recording changes in the environment. This allows the Internet of Things to record any changes in the environment or an object. For example, by having sensors installed on a bridge, the data collected can be used to estimate the number of cars that travel on the bridge, the traffic on the bridge at different times of the day, and the speed of the cars

travelling on the bridge. This data can then be used for navigation systems, to allow programs or software to determine the fastest route, depending on the time of day. Also, the sensors installed on to a bridge can be used to determine the safety of the structure of the bridge. For example, the sensors can be made to detect the vibrations along each part of the bridge, to detect any impending failure or fault. By collecting such information, any problems such as damage to a structure can be detected early on and dealt with, before any problems arise. Embedded intelligence in things themselves can further enhance the power of the network. This is possible because the information processing capabilities are devolved, or delegated, to the edges of the network. Embedded intelligence will distribute processing power to the edges of the network, and offers greater possibilities for data processing and increasing the resilience of the network. With embedded intelligence, the things or devices connected at the edge of the network can make independent decisions based on the input received at the sensors. However, the term implies a certain processing power and reaction to external stimuli. Advances in smart homes, smart vehicles and personal robotics are some of the leading areas. Research on wearable computing is swiftly progressing. Scientists are using their imagination to develop new devices and appliances, such as intelligent ovens that can be controlled through phones or the internet, online refrigerators and networked blinds. The Internet of Things will draw on the functionality offered by all of these technologies to realize the vision of a fully interactive and responsive network environment. It is done by first attaching a tag, known as the RFID tag, to the object or person. This tag will then be read by the reader to determine its identification information. However, barcode requires a line of sight in order to be scanned whereas RFID tags do not need a line of sight to be read. This means that RFID tags can be read even if the tag is kept in a box or a container, or kept in a pocket. This is because it uses radio waves. This is a huge advantage of RFID. Its power supply comes from the radio energy transmitted by the reader. Other than that, hundreds of RFID tags can be read at a time, unlike the barcode where only 1 can be scanned at a time. This is because the Internet of Things is a network of objects connected together and if all everyday objects in the world are to be connected, we would definitely need a simple and cost effective system to do it. RFID is the solution to this problem. This means that it is very cheap and is possible to be attached to huge amounts of everyday objects. Other than that, as said in the previous paragraph, there is a type of RFID tag known as a passive tag which does not require any batteries to function and gets its power supply from the radio energy transmitted by the reader. This will save the cost of batteries and we do not have to worry about batteries being worn out and replacing them. This will save us from much hassle of checking and replacing batteries. Other than saving trouble and cost, this also gives the tags infinite lifetime because they are completely dependent on the reader for power. As long as there is a reader, the tag will work. Another point stated in the previous paragraph is that hundreds of RFID tags can be read at a time. This means that there will be no mistake in the information which the tag provides and will not be jumbled up with information from other tags. RFID tags can be integrated with sensors to send not only identification data but also valuable information. When a reader reads a tag, the sensors information will be sent to the reader along with the identity of the object. This way, we can monitor changes in an object such as temperature, pressure or vibration. This allows us to avoid any disaster or safety hazard from happening. For example, if we were to tag the tyres of a vehicle with a pressure sensor and we assume that a workshop has a RFID tag reader, every time the vehicle enters the workshop, the reader will automatically read the tag and obtain the information of the pressure of the tyres. It will be able to identify a specific tyre which has too much or too little pressure and so we can either increase or decrease the pressure to prevent any mishap from happening. The Internet of things has become a new Era in this day and age. There is a need to have a solution to guarantee privacy and the security of the customers in order to have a widespread adoption of any object identification system. The security has been done as an add-on feature in most cases, and the feeling that the public acceptance for the internet of things will happen only when the strong security solutions are in place. This could be hybrid security mechanisms that for example combine hardware security with key diversification to deliver superior security that makes attacks significantly more difficult or even impossible. The selection of security features and mechanisms will continue to be determined by the impact on business processes. The security and privacy issues should be addressed by the forthcoming standards which must define different security features to provide

confidentiality, integrity, or availability services. These are some security and privacy requirements with descriptions: The system has to avoid single points of failure and should adjust itself to node failures. As a principle, retrieved address and object information must be authenticated. Information providers must be able to implement access control on the data provided. Measures need to be taken that only the information provider is able to infer from observing the use of the lookup system related to a specific customer. The fulfillment of customer privacy requirements is quite difficult. A number of technologies have been developed in order to achieve information privacy goals. As only partners have access, they promise to be confidential and have integrity. However, this solution does not allow for a dynamic global information exchange and is impractical with regard to third parties beyond the borders of the extranet. However, as each Object Naming Service ONS delegation step requires a new TLS connection, the search of information would be negatively affected by many additional layers. Conclusion[edit] In conclusion, Internet of Things is the concept in which the virtual world of information technology connected to the real world of things. ITU Internet Reports The Internet of Things. Architecting the Internet of Things. Roadmap for the future. May, Retrieved from: Retrieved November 10, , from http: Retrieved November 15, , from http: Retrieved November 4, , from http: The Internet of Things Executive Summary.

Chapter 4 : Our (info)graphic, short history of the industrial Internet of Things

History isn't only what you read in school books. A lot of the stuff you use in your daily lives have really rich histories themselves. And, sometimes, those histories are way, way more interesting than what you'll read about in history class.

This speaks to the ubiquity of this form of communication. How about text messages? Emojis are distinct from emoticons! Before we get into the history of emojis in full, there needs to be a quick clarification on emojis versus emoticons, as people sometimes get the two confused or use the words interchangeably. Emojis are real images and symbols that are rendered on your devices, whereas emoticons are simply expressions and faces created with basic characters from your keyboard. This expression that indicates a smileâ€”: The origins of emojis Where did emojis come from? They began to remark on a trend where a lot of picture messages were being exchanged by their Japanese client base. So instead of just ignoring this and focusing on how they could charge their customers more money, these Japanese mobile-phone companies actually gave their users more of what they wanted. In Japan this is particularly important, as snail-mail letters have a tradition of being long-winded, full of honorifics, and emotional messages of goodwill. With digital, you ended up robbing people of this more personal aspect of communication, resulting in a relationship breakdown and miscommunication, that Kurita wanted to fix. A very insightful Kurita quote from Storify explains his rationale for how he came up with emojis in the first place: When I saw it, I found it difficult to understand. Which was a challenge since he majored in economics! He and his team went old-school, putting down their emoji-design ideas on paper, striving to come up with a thorough set of characters that were pixel by pixel. Hopefully, these would capture the entire breadth of human emotions. Needless to say, it was a tall order that was more ambition than pragmatism. Still, Kurita and his team succeeded in creating a slew of emojisâ€”everything from representations of jeans and art to bullet trains and, naturally, smiley facesâ€”digging deep into his childhood fondness for things like manga and kanji for inspiration. This time around, though, sensing that Kurita was on to something profitable that would catch on with Japanese consumers, they were more agreeable. Kurita was surprised by this move because he expected the various manufacturers to still improve on his designs. You have to remember that his designs were very basic and rough since he only had a by grid in which to work. In such a small space, detail has to be sacrificed to a certain extent. In a calculated move to steal customers away from NTT DoCoMo, the competition wound up creating additional emoji that were more detailed; they also added some animation into the mix. Call it the problem of having a whole disarray of varying proprietary approaches. However, a breakthrough was finally reached in , after a few years of this problem, as the carriers started to map their incoming signals to their own emoji character sets. Today, even with additional moves toward standardization of emojis in Japan, there can be as many as , depending on your phone and carrier. Enter Apple If you want to thank a single company for popularizing emoji globally, look no farther than Apple. How did they do it? According to NY Magazine , starting in with the first iPhone that was released, Apple wanted to make inroads into the tough Japanese market, so they thought to themselves what better way than to include emojis in our iPhones! After all, emojis had already been well-established in Japan by that time and were a cultural phenomenon there. That was at least the case in Japan. From then on, the use of emojis has spread like wildfire beyond Japan, as Apple realized the huge demand for this outside Japan, too. It was only in that Apple began to officially support emojis internationally with the iOS 5 release. In just five, short years, these pictographs that started out from the imagination of one man working at NTT DoCoMo have become an indelible standard on mobile devices throughout the globe. With Android jumping on board the emoji bandwagon as well, emojis are today a standard in digital communication across all platforms. It took a lot of work and the Unicode Standard to make it a reality and allow everyone from teen girls and boys to moms and dads to text emojis like mad. For you to be able to send that cute pile of poo emoji where you live in the U. Back in , certain emoji character sets were incorporated into Unicorn, which has enabled these emojis to be used not just outside of Japan, but also across various operating systems in a consistent fashion. Note that this occurred just one year before Apple finally succeeded in being able to support emojis internationally with its iOS 5 release. Ah, the glory of

standardization in digital communication! What does the father of the emoticon think? We briefly mentioned emoticons earlier on to make clear the separation between emojis and mere emoticons. Misunderstandings based on jokes written in messages on the bulletin board were a problem, and the good professor wanted to avoid any feelings of ill will growing out of mere miscommunication. The constant, endless stream of emoji updates Since this standardization and ensuing global popularity occurred a few years back, emojis have been continually updated on all major OS. The gay and lesbian couple are shown holding hands as much as Apple can accurately show pixelated characters holding hands. Before this crucial and long-needed Android update, users had a hard time to make emojis work on their Android devices. They either had to memorize specific command words to select emojis, or they had to actually long-press their spacebars after they installed the correct language packs. As a result, Android users everywhere rejoiced, as they could now keep up with the fast and furious text messages of teen girls around the globe. Filled with guilt about the lack of African-American emojis, the company finally rectified this error by working with the Unicode Consortium to include emojis depicting African-American faces in their character sets. Users for the first time ever could now hold down on specific emojis and choose the specific skin tone that they wanted. Later in â€" Apple releases a big update in version 9. The most notorious addition is probably the middle finger, which pranksters had been calling on Apple to add for the longest time! Other noteworthy additions include the burrito, taco, unicorn, the Vulcan salute, the zipper mouth face, the writing hand, and the impressive speaking head in silhouette. Shortly thereafter, Apple decided to replace the pistol emoji with a green water gun that made its debut in iOS What does the future hold in store for emojis? In just a few, short years, people have taken to emojis like nothing before! When everyone including your mom texts them, then you know you have a global phenomenon on your hands. You can send an emoji on an iOS device and have it show up no problem on an Android device. You can also send emojis on desktop and mobile devices. Clearly, the Unicode standard has ensured that virtually everyone on the planet with access to a digital device can send and receive emojis! The father of the emoji, Kurita, still works in the tech industry as part of the online services of Namco Bandai games. No one could predict that emojis would take off as they did in only a relatively short time, not even Kurita. As Kurita says in reference to the implied messages behind some emojis: Find out more about him at marcschenkercopywriter. More articles by Marc Schenker Popular posts.

Chapter 5 : Brief History of the Internet | Internet Society

There have been visions of smart, communicating objects even before the global computer network was launched forty-five years ago. As the Internet has grown to link all signs of intelligence (i.e.

Industry experts also agree that the industrial sector has the most to gain from this technological revolution, and that the Industrial Internet of Things IIoT will likely drive the lion share of overall IoT revenue growth. As technology continues to evolve at an unprecedented pace, the future of IIoT is on the minds of investors and technology end users alike. Dick was not the only one busy in Laying the foundation for connectivity Fast-forward to the s and two critical IIoT milestones. The standardization of Ethernet connectivity in laid the groundwork to physically connect machines from different manufacturers. Lee conceived and developed the Web to meet the demand for automatic information-sharing between scientists in universities and institutes around the world. This was the first meeting of what we know today as the OPC Foundation. Connectivity, collaboration, and cooperation When these industrial solution vendors first convened, their human machine interface HMI and supervisory control and data acquisition SCADA solutions were developed with proprietary communication protocols or driver libraries. As best-of-breed solutions emerged, and end user industrial operators began to build integrated architectures with solutions from multiple vendors, the need to enable communication across traditionally disparate machines became clear. Although this solved their own connectivity issues, it limited how end users could integrate additional solutions. The OPC Foundation forced many competing vendors to work together to solve connectivity problems perpetuated by proprietary communication protocols. The need for more interoperable solutions was further highlighted in , as Microsoft Windows gained dominance of the plant floor. Windows 95 was the first Commercially Available off the Shelf COTS Operating System OS with plug-and-play capabilities to support easy integration with hardware, and it allowed users to interact with graphical units and controls similar to HMIs already being used in the factory. As it became clear that Microsoft Windows was the ubiquitous OS to build around, all industrial software development began targeting Microsoft Windows as the platform of choice. The late s also included major advancements in wireless M2M technology. Ethernet, then a quarter of a century old, emerged as the universal connectivity standard in industrial settings. Consortiums for each of these standards began to form. The industrial sector was rapidly evolving towards the IIoT that we know today. Connectivity was even made possible for legacy devices, a trend that would prove key in industrial settings, where equipment is expensive and considered a longer term investment. Perhaps the most significant IIoT milestone of the early s was the advent and widespread adoption of cloud technologies. The introduction of Amazon Web Services in brought the cloud to the masses and forever changed the way enterprise and industrial architectures were built and utilized. Fourteen years later, the cloud and virtual machines are still presenting new opportunities for the IIoT. Hybrid controllers and Programmable Automation Controllers PACs emerged, and legacy hardware evolved as battery and solar power became more reliable and economical. Manufacturers could power sensors across a distributed architecture, like an oil pipeline, to empower intelligence and connectivity at the farthest reaches of an organization. The combination of widespread power sources and connectivity with smart devices began to add meaningful context to industrial data. Data transforms into information Context transformed data into information, and the industry turned again to the OPC Foundation to solve emerging challenges around communicating this contextual data. The new OPC UA protocol was built on existing standards, but addressed the development of new technology and advancements. Its generic information model supported primitive data types such as integers, floating point values, and strings , binary structures such as timers, counters, and PIDs , and XML documents. To this day, OPC UA delivers an interoperability standard that provides data access from the shop-floor to the top-floor. By , machine and operational data began to yield real value, and more organizations sought to store and analyze their data over time. In response, the data historian market took off and sensor technology experienced significant price drops. IT industry leaders, including Citrix and Intel, began openly discussing best practices for the growing bring your own device BYOD trend. IIoT today, tomorrow, and beyond Over the last six years, all the pieces have fallen into place to solidify a real and

meaningful vision for the future of the IIoT. Over the last two years, major investments in innovation and acquisitions have further refined these emerging IIoT platforms. With so much at stake, there will undoubtedly be major shifts in the industrial world. As rules change and technology develops, roles will evolve and business structures will adjust. For example, traditionally disparate operations technology and IT divisions are starting to collaborate and even merge. And as integrated, accessible data becomes the norm, data scientists who can interpret that data are increasingly moving into decision-making executive leadership roles. While it is difficult to predict exactly how the IIoT will evolve, it is clear that we are reaching a tipping point in this new industrial revolution. As more devices become connected and more data is created to feed into increasingly powerful analytics and artificial intelligence programs, there is seemingly no limit to the advances that can be made around the IIoT.

Chapter 6 : A Quick History of the Internet of Things -

A brief history of the Internet of Things The birth of IoT. Kevin Ashton, inventor of the Internet of Things. The term Internet of Things is 16 years old. But the.

To do so, you must look back to the beginning: In , the structure we know and love today was born. Just ten years later. The first website actually came online in In no time the internet took over. By , multiple websites and systems came online. I remember watching crude bulletin board systems arise, then quickly be replaced by Geocities pages and early websites. The first business webpages actually came in the form of reproduced fliers, essentially scanned and put online to promote companies. All of these new ideas came from the imaginings of others that had taken place decades earlier. You can find references to it as far back as the idea of the Internet itself, but if you survey an IoT team, it is more than likely that few know this. The history, or at least the ideology, goes back a great deal further than most people know. This, of course, has ramifications on the marketplace, both in how older technology companies approach the space and how traditional product introduction processes operate. Thinkers across history could be responsible for coining the term, depending on the story you read. Some point to Tesla and Edison as the first to lead connected objects. The founders of Nest could also make the list, one of the first truly non-computer connected objects. Even the idealism and futurism of the s and s gave way to the Internet of Things thinking. The story is that, no matter what route you pick to decipher the past, the rise of Internet of Things thinking is ubiquitous. Apple returned to the market with the iMac, and the team that designed this platform would go on to design the iPhone and, most critical to IoT research, the iPod. Big name manufacturers that had for most of their development focused on the PC were now investing in everyday objects with connectivity and technological features. The smartphone era was planted, and with it would come the first real consumer-level IoT object based on existing computers. The history of IoT is extraordinarily dense, and the reading of the history depends on who you ask. If you were to question a designer at IBM in the late s, you would find ideas similar to what we now call IoT in constant use. However, if you ask an emerging startup from the early s, you would find a wave of thinkers taking credit for the idea. The reality is somewhere in between: IoT has continued to grow and to evolve and projections are bright for this new methodology for using the internet. The future of IoT is now â€”with devices coming online every day. The world is reliant upon connected cars, connected medical devices and even connected homes. Companies today are scrambling to get their own IoT systems online and moving and new recruits are being brought in every day to head up IoT systems in companies both large and small. How well do they know the history of the internet of things and exactly how broad it can be?

Chapter 7 : Internet of Things (IoT) History | Postscapes

This is intended to be a brief, necessarily cursory and incomplete history. Much material currently exists about the Internet, covering history, technology, and usage.

Tweet on Twitter The Internet is reaching every corner of the world. By , the Internet is expected to have 7. What is the Internet of Things exactly and where did it come from? In , America landed on the moon. The problem was that all of these networks existed but they were isolated from each other. The Internet was born out of those fragmented ancestral networks that predate it. The Internet was fully realized in when it was opened for commercialization. Companies like Amazon and Ebay were born, establishing a platform for consumers to buy things at the click of a button. In , 44 million people were online. Currently, there are 3. A brief history of humans and communication: Ever since humans arrived on the planet we have developed better ways of communicating or transmitting information. Modern language was the first key development, estimated at about 60, to , years ago. Then came the next big leap, writing or written form , with the earliest discoveries of it at about 6, years ago. This step was huge! It was the first time humans were storing information outside of our own brains! Writing went through many improvements since its inception but nothing was more revolutionary than the printing press, introduced in by Johannes Gutenberg. This was the first time we saw that information could be widely available for the masses. Even though it took, roughly, 54, years to go from language to writing and another 4, years from writing to the wide distribution of information, the years after would see great progress. Next up, the telephone in The telephone was a great step forward as it simplified the delivering of messages, you no longer needed someone to transcribe and interpret your telegram. Now you could just talk into a receiver and the person on the other line could hear your voice. We were now able to transmit our voices over long distances but it was only for person-to-person communication. Then came the radio and radio broadcasting, which did to the telephone, what the printing press did to writing. It allowed our voices to reach the masses. All of these advances in information and communication were tremendous achievements. The only caveat to them is that they were all limited to the human brain. They were only as powerful as our own mental capacity. Internet of Things takes shape: A man will be able to carry one in his vest pocket. From the information provided by these sensors the brain is able to process information in order to perform certain actions. It takes the information registered and it acts upon it. The first Internet-connected device was a toaster, created by John Romkey in , that could be turned on and off through the Internet. It was a simple and novel idea but it showed what the Internet was capable of. It set the stage for the idea that the Internet was not just for computers. The Internet was clearly a medium for communication, but unlike the telephone, the message that could be transmitted through it was only limited to the imagination of the user and the capabilities of their computer. We just had to be patient and wait. In , the first commercially successful IoT product was introduced, the Nest Thermostat, selling over 1 million units. This was one of the first validations that IoT was on the rise. There are also thousands of new IoT products being introduced each year and by the end of we expect to see 4. With so many IoT related devices entering the market and so many different platforms that are available to choose from, how will our smart light bulbs be able to talk to our smart toasters? Yes, to people today a smart light bulb or a smart outlet might seem silly but once ubiquitous computing through IoT devices becomes commonplace and really cheap, it will seem silly NOT to have that smart light bulb.

Chapter 8 : World History Timeline

The Internet of things has evolved from an intriguing concept into a sophisticated network of devices, and the number of connected machines is growing daily.

It was not until ten years later that the first domain name system or DNS was introduced. The first website actually came online in The internet that he had proposed just a scant two years earlier came crashing into our mainstream world. It was a technological awakening that had been a long time coming. In no time the internet took over. By , multiple websites and systems came online. Entertainment by means of bulletin board systems began to be seen. All of it came from the imaginings of others that had taken place decades earlier. That history or at least the ideology goes back a great deal further than most people know. A man will be able to carry one in his vest pocket. It rose and fell respectively according to the pricing trends and the volume of stock on the NYSE. Business Week in was the scene of the next big announcement about the term Internet of Things. It will use the Internet as a scaffold to support and transmit its sensations. This skin is already being stitched together. It consists of millions of embedded electronic measuring devices: These will probe and monitor cities and endangered species, the atmosphere, our ships, highways and fleets of trucks, our conversations, our bodiesâ€”even our dreams. The future of IoT is now â€”with devices coming online every day. The world is reliant upon connected cars, connected medical devices and even connected homes. Companies today are scrambling to get their own IoT systems online and moving, and new recruits are being brought in every day to head up IoT systems in companies from small to large. How does your company use IoT? Where are you going with it?

Chapter 9 : A History of the World in Objects - Wikipedia

The history of the modern Internet of Things (IoT) dates back to the s, yet IoT has evolved hugely since then, thanks especially to the cloud.

However, there have been visions of machines communicating with one another since the early s. Machines have been providing direct communications since the telegraph the first landline was developed in the s and s. The development of computers began in the s. Global Positioning Satellites GPS became a reality in early , with the Department of Defense providing a stable, highly functional system of 24 satellites. This was quickly followed by privately owned, commercial satellites being placed in orbit. Satellites and landlines provide basic communications for much of the IoT. One of the first examples of an Internet of Things is from the early s, 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 , 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. This includes almost anything you can think of, ranging from cellphones to building maintenance to the jet engine of an airplane. Medical devices, such as a heart monitor implant or a biochip transponder in a farm animal, can transfer data over a network and are members the IoT. Ring , a doorbell that links to your smart phone, provides an excellent example of a recent addition to the Internet of Things. Ring signals you when the doorbell is pressed, and lets you see who it is and to speak with them. During his speech, Mr. Nearly all of the roughly 50 petabytes a petabyte is 1, terabytes of data available on the Internet were first captured and created by human beings by typing, pressing a record button, taking a digital picture or scanning a bar code. The problem is, people have limited time, attention, and accuracy. All of which means they are not very good at capturing data about things in the real world. If we had computers that knew everything there was to know about things, using data they gathered without any help from us, we would be able to track and count everything and greatly reduce waste, loss and cost. We would know when things needed replacing, repairing or recalling and whether they were fresh or past their best. To some extent, the tagging of things has been achieved through technologies such as digital watermarking, barcodes, and QR codes. Inventory control is one of the more obvious advantages of the Internet of Things. Imagine an alarm waking you at 6 AM in the morning, and then simultaneously signaling your coffee maker to turn on and start brewing coffee. Imagine your printer knowing when you are running low on paper, and automatically ordering more. The IoT can be used to organize such things as transportation networks. In truth, the IoT provides a nearly endless supply of opportunities to interconnect our devices and equipment. The IoT offers both opportunities and potential security problems. At present, the Internet of Things is best viewed with an open mind, for purposes of creativity, and a defensive posture for purposes of privacy and security. Customer Privacy As sensors and video cameras become more common place, especially in public spaces, consumers have less and less knowledge about the information being collected , and no way to avoid it. Many people are uncomfortable with the idea of companies collecting information about them, and even more uncomfortable having that information sold to anyone and everyone. This has led to continuing discussions about consumer privacy and how to best educate consumers regarding privacy and the accessibility of data. Security While there are steps to take to help ensure security , it should come as no surprise this issue has become a significant concern with the growth of the IoT. Literally billions of devices are being interconnected together, making it possible eventually for someone to hack into your coffee maker, and then access your entire network. The Internet of Things also makes businesses all around the world more open to security threats. Additionally, data sharing and privacy becomes issues when using the Internet of Things. Consider how concerns will grow when billions of devices are interconnected. Some businesses will be faced with storing the massive amounts of information these devices will be producing. They will need to find a method of securely storing the data, while still being able to access, track, and analyze

the huge amounts of it being generated. The threat is so real, even the Federal Trade Commission has gotten involved, wanting to know how to guarantee privacy, and how security safeguards are being installed in new Internet-connected devices. For example, new cars can now be hijacked by way of their Wi-Fi connections. Consider the threat of hackers when automated driving becomes popular. Security and risk management should not be taken lightly when creating new ways to use the Internet of Things. August 6,