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Objective of your project

NFC, abbreviated Near Field Communication, is a short-range wireless technology that enables the communication between devices over a distance usually less than 10cm. It is a form of contactless communication between devices like smart phones or tablets, which allows a user to wave the smart phone over a NFC compatible device to send information without needing to touch the devices together or go through multiple steps setting up a connection. It is not relatively a new cutting edge technology but rather a newer version of RFID (radio frequency identification). NFC's ability to transfer photos or contacts between devices (two-way communication) and its better security give the edge over RFID. It has the potential to completely revolutionize consumer and government industries as the adoption rate continues to grow. NFC is rapidly becoming more popular in parts of Europe and Asia, and its quickly spreading throughout the United States. With the mobile industry continuing to evolve and grow, NFC sensor chips are making their way onto the latest smart phones. "According to estimates, over 30 percent of all phones globally will have NFC built-in within the next four years" (Molen, 2011, p. 6).

Near field communication can easily be mistaken for RFID. NFC is actually a subset of RFID with a shorter communication range for security purposes ("History of Near Field Communication," 2012, p.1). In 2004, Tech giants Sony, Phillips, and Nokia came together to build the NFC forum. It was created to primarily to facilitate two tasks, first to promote the security, ease of use, and popularity of near field communication. Second, to educate businesses about the technology and uphold the standards that allow NFC to operate between different devices. Manufactures who want to create NFC complaint devices must meet these standards set

fourth by the NFC forum. This ensures that any user with an NFC device can use it with any other NFC device or NFC tag.

Although the NFC forum was formed in 2004, it wasn't until 2006 that the group produced the first set of specifications for NFC tags. NFC tags are small objects, like a sticker, that contain information that a NFC compatible device, such as a smart phone, can intercept when passed over the NFC tag. Usually the information on the tag is read only, but certain tags do allow the device reading it to write new information to it.

The first NFC-compatible cell phone, the Nokia 6311, also surfaced during this time. As the years passed, more specifications emerged and the technology grew from payment methods to sharing videos, links, and game invites between smart phones and other NFC devices. Android produced its first NFC phone, the Samsung S, in 2010. Today the NFC markets are most dominant in Europe, Asia, and Japan. Through the United States is also seeing rapid growth in this field.

My hypothesis will be Near-Field-Communication has a plethora of benefits & it needs to be integrated more into today's technology and society. Based my on research on NFC, it will either confirm or negate my hypothesis above. The position I take on the matter is, I agree with the notion that NFC has the ability to bring forth new opportunities and benefits in many aspects of our daily lives. Throughout my research I will gather research data to show technology companies such as Apple and Samsung are paving the way for us to take advantage of the many benefits found with integration of NFC. I will also conduct research on whether this technology has the capabilities to make routine tasks become more efficient.

Professor Murphy and my peer review have both enjoyed my first topic submission and the conversations we've concerning the topic. Dr. Murphy has told me she's been fascinated with

the broad capabilities coming to light this technology can harness in the few short years it has come mainstream. I think I will try to investigate what the powerful tech companies are planning to do with NFC to impress Dr. Murphy even more. My peer reviewer has also shared the same sentiments about NFC and has challenged me to guess the next big thing when it comes to the technology. I look forward to updating him with my findings.

Content Advisor summary

My faculty member is Dr. Diane Murphy. She is an IT advisor and professor at Marymount University. She is quite popular as she has lead countless students in IT conventions and school trips. She has a background as a project manager, CEO of a business, and much more. When it comes to IT and the latest technologies, she has an outstanding grasp to the latest buzz and news. I choose her as my advisor because every time I speak with her I learn something new about the profession and her experience is quite unmatched.

Project Plan

To complete the rest of the work on this topic, I will need to gather more extensive research data and articles to back up my hypothesis. So far, I have divided up my time to tackle certain aspects of NFC to determine its full capabilities and benefits. Now learning and becoming an expert on each aspect, I will be able to give me prediction on how the industry will move and what to expect in the future, hopefully. I will also be able to state whether or not I can see practical use for consumers, which is ultimately the biggest benefit for any technology.

Resources

I will not need any special additional resources from an organization or university. The resources that I have thus far, which public internet access and a local library are more than enough. These resources are free of course have served me well thus far.

Project Details

NFC is a technology that allows very easy but very short distance communication between two objects embedded with the proper chip. The communication happens when the devices are brought within a few centimeters of each other (Near Field Communication, About Near Field Communication). One of these devices is usually a smart phone, and the other one could be another smart phone or some other object that you want your smart phone to interact with. Using smart phone to smart phone communication you can send documents from one user to another. When one of the objects is not a smart phone NFC can allow you to download information about that object into your smart phone. This information is usually stored in the NFC chip embedded in the object. This has all sorts of applications, especially in marketing. NFC can also be used to establish other forms of connection between the objects, such as Bluetooth, or Wi-Fi so that the objects can still communicate when they move too far apart from each other to use NFC for communication (Near Field Communication, Using Near Field Communication).

More and more these days the buzz surrounding NFC and what it can do for both businesses and individuals continues to grow. Consumers today who are looking to take advantage of the benefits brought by NFC technology will either have to own a smart phone that is NFC compatible or buy a SIM card embedded with the NFC chip.

First benefit is contactless payments. This is the number one reason driving business and phone manufactures to push the wide spread adoption of the technology. Consumers also benefit from this by replacing the need of carrying numerous credit cards that may get lost or stolen. This technology allows the customers to store multiple cards and choose which one they want to use for each transaction. This not only saves time for the customer, but businesses like it because more transactions are made on a daily basis.

Another advantage of NFC is information sharing. NFC tags rely on radio frequency signals sent from a smart phone or other NFC compatible devices to operate instead of battery. This along with their small size let them go virtually anywhere. From movie posters to door handles to bus stop signs, an NFC tag can hold information that a user can retrieve by simply swiping their phone over to read.

Next is transportation. With NFC, the next time you are at a bus stop or train station you can simply wave your smart phone over any information sign to see when the next bus or train is coming and route information. NFC can also make commuters lives easier but simplifying the ticket purchase process. Some commuters may lose their transfer ticket in the rush of the morning commute or overpay for a ticket by not traveling the entire route. With NFC, commuters can keep track of their transfers and simply wave their devices over the railing when needing to travel further.

Last but not least, social networking is another advantage of NFC. With NFC tags you can check in at a location by swiping your smart phone or exchange contact information with a new friend by simply bumping phones. These benefits are made easy with the technology of NFC. No longer will you have to deal with unnecessary log-ins or working your way through menu screens.

My capstone project has been coming along great so far. I've been able to compile loads of information on the topic and I've been learning a great deal as well. Thus far, I have researched and talked about the background information, the purpose behind the technology, the advantages it brings to the world and some predictions to where I think it can reach in the future. For the rest of the semester I need to continue with my research and conversations with my faculty member to enrich this document with everything I have.

Since NFC is a relatively recent technology it is important to discuss potential future applications. One such application is to provide additional information at grocery stores. In this application one would move one's smart phone within proximity of the label and it would reveal various additional information about the product (Sacco, 2012). This could be useful for people with food allergies, because you could install an app on your phone that reads the NFC chip in the label and tells you if it contains peanuts or other common food allergens (Sacco, 2012). The applications for marketing also exist outside of the grocery store.

It is possible to embed NFC chips in posters for movies and adds for many products. For example you could hold up your phone to the ad, and shown a video about the product. It could also direct you to a website where it is possible to purchase the product being advertised (Tibken, 2013). This would be particularly helpful at the movie theater so you can get tickets for an interesting looking movie as soon as you see the poster. Another application of NFC is in various appliances. This would allow you to pair the appliance with your cell phone so that your cell phone could then turn on the appliance remotely through more long range signals (Tibken, 2013). This technology can also be used to operate your TV from your phone by pairing your phone with the TV. In addition to the TV there is also the possibility of connecting your phone to speakers so that they can play music stored on your phone (Tibken, 2013). In these cases NFC

only makes the connection between your phone and the other devices. The actual information is sent by Bluetooth. Another notable future application of NFC is to allow you to unlock his car door just by having his smart phone in your pocket (Tibken, 2013). This is similar to technology that already exists today, which uses "weak radio waves" to send the unlock signal from your key to the car based on proximity (Toyota). One of the ultimate aims of NFC technology seems to be to allow you to make payments with your mobile phone just by bringing it near a cash register (Tibken, 2013). The technology to do this has been developed, but the implementation is slow because not many stores have found it popular enough to be worth implementing (Tibken, 2013). At the Consumer Electronics Show (CES) where various new applications of NFC were displayed many executives wore wristbands with NFC technology that allowed their contact information to be displayed, or handed out business cards implanted with NFC technology (Tibken, 2013).

Knowledge being applied

A course that would be applicable to this project would be a modern telecommunications course within IT. That course would go over the great number of communication methods prevalent today. Also anyone working with communications within the IT world professionally would have experience with NFC and other radio frequency technologies such as Bluetooth. I personally have read many articles on the topic and try to gather my information from scholarly magazines and journals.

Risk factors

Since I am not building an application for a client or waiting on an organization for resources, I don't see any factors that can negatively impact my project. The only impace I can forsee would be if the internet entirely around the world stopped working and I don't see that happening. I will be able to gather my information for the purposes of this project.

Work to be performed by others

I am working and have been working on this research project without any outside help besides the knowledge of my faculty member and the peer revision of my capstone reviewer. Besides that, my resources have been the internet and a local library.

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