

Score row	Total number of points earned: 36 (out of 42 possible points)	Scoring Commentary
IWA-1	4	Research question not explicit; clearly relates to location service but not sure from the opening paragraphs if the essay is investigating market potential, privacy issues or status?
IWA-2	6	The essay considers problems with LBS as well as advantages they offer from a variety of perspectives.
IWA-3	6	The argument interprets and synthesizes evidence from a wide range of sources including businesses, marketing projection surveys, American Civil Liberties Union.
IWA-4	4	The sources seem for the most part to be credible but this is not directly addressed in the essay.
IWA-5	4	The discussion explores the possibilities and limitations of LBS and the potential for growth in a logical and well reasoned way. A direct research question would have enabled a more focused approach to the argument.
IWA-6	6	The essay clearly links claims and evidence and offers insights from the connections between them- such as the role and changing nature of systems such as Life Alert.
IWA-7	3	The sources seem to be accurately cited and attributed in the essay.
IWA-8	3	Although the report contains some grammatical flaws, it does clearly communicate to the reader.

Marketing and Location-Based Services Technology

As human understanding of technology broadens so does our knowledge of how to use this technology to locate others. These location services have become much more prominent through the heavier use of Wi-Fi (also referred to as WLAN - wireless local area network) which creates access points for one to find a person's location. However, location services haven't reached their maximum potential, but are they about to? What is being done in this area of technology? Will this newly developing market create a more connected society in America?

The projected issues with these services are for the most part privacy related. These concerns do cause many consumers to avoid location based services, but does this have an impact on the market? Could these privacy concerns be put to rest in order to expand location based service?

My possible bias towards this topic is the fact that I own and use a device that has location services, for the most part Google Maps, that I use. I do not feel that this will affect my paper due to the fact that I only wish to find if these services are creating a new market therefore my bias is not directly related. Nonetheless, I am interested in location based services market growth because I have begun to notice a heavier use of and even complete dependence on these services by my peers and family members.

Location-based services were recently developed through the already existing software known as GPS (global positioning system). The GPS was invented by the United States Department of Defense and Ivan Getting, an Oxford scholar who earned a Phd in astrophysics, in 1995¹. This system is operated through the power of satellites to provide location and time

¹ "Dr. Ivan Getting | The Aerospace Corporation." 2012. 17 Dec. 2013
<<http://www.aerospace.org/about-us/history/in-their-own-words/dr-ivan-getting/>>

information in all types of weather conditions says the National Park Service, a branch of the American government². LBS (location-based services) offers all that the GPS does with more applications for the software. Many companies like Google and Yahoo are beginning to promise consumers a perfect user-friendly map for navigation including what time to leave, what your rate of speed is, the best route to get there, and even what to do when you arrive at your destination. These maps can also include services that, for example, provide the user with nearby restaurants along with not just an address but their number, website, and star rating.

Location-based services easily locate a person's device through Wi-Fi cards and Wi-Fi access points or sometimes through the GPS the device uses for navigation that finds location through 3G or 4G networks depending on the device. This means, according to the Pew Research Center, a Washington D.C. based American think-tank that provides demographics and information on social issue trends that are shaping the U.S. and the World, that at least 56% of American adults can be tracked down through LBS solely based on smartphones³ because of their ability to access Wi-Fi and 4G. Apart from tracking and navigation, there are six other categories that LBS has been able to improve. The improved categories consist of gaming and entertainment, real estate and retail, advertising, news and weather, device management, and public safety. Hence, there has been a growing demand for LBS products as more providers improve their services. Simon Garfield, a British journalist and non-fiction author who currently writes for *The Observer*, a social liberal newspaper, states that "not only will [location services] become the decisive element in the smartphones and apps we buy, it is also the way shops will find out when we are nearby."⁴

² "The History of GPS - National Park Service." 2006. 18 Dec. 2013
<<http://www.nps.gov/GIS/gps/history.html>>

³ Joanna Brenner. "Pew Internet: Mobile - Pew Internet & American Life Project." 2012. 18 Dec. 2013
<<http://pewinternet.org/Commentary/2012/February/Pew-Internet-Mobile.aspx>>

⁴ "From shopping to warfare, why maps shape our minds as well as ..." 2013. 17 Dec. 2013
<<http://www.theguardian.com/science/2012/sep/22/why-maps-shape-our-minds>>

Jason I. Hong and J. D. Tygar from the the University of California Berkeley, James A. Landay and Bill N. Schilit from the Intel Research Seattle, and Gaetano Boriello and David W. McDonald from the University of Washington have collaborated in order to make headway in the evolution of LBS and settled on a project they named PlaceLab. The whole project initially started with the idea to create location-based services that were able to overcome their three main barriers: low-cost convenient location finding technologies; useful-usable location-based services; and techniques to address end-user concerns about location privacy⁵. Though PlaceLab is under construction there has been much improvement and progress on the capabilities of LBS, also significant adjustments to these services have been made to help lessen privacy concerns.

Researchers have found ways to use LBS in the medical field as well. Being conducted by Maged N. Kamel Boulos, a British health informatician and scientist currently based at the University of Plymouth, is the Complete Ambient Assisted Living Experiment (CAALYX). This specific healthcare technology is capable of measuring vital signs of the elderly, detecting falls and location, and automatically provides emergency communication with a healthcare provider no matter where the older person is. LBS are vital to this assisted living program because it enables the elderly to gain autonomy and self-confidence by being able to live alone with just a wearable lightweight device that will quickly respond to them in medical emergencies⁶. Though this project is funded by the European Union, the American market has developed their own version of this new technology to improve an old idea commonly known as Life Alert⁷.

Recent experimenting with LBS potential, like PlaceLab and CAALYX, have ultimately

⁵ Hong, JI. "Privacy and Security in the Location-enhanced World Wide Web." 2009. 17 Dec. 2013 <<http://www.pensivepuffin.com/dwmcphd/papers/Hong.UbiComp03-placelab.pdf>>

⁶ Boulos, Maged NK et al. "CAALYX: a new generation of location-based services in healthcare." *International Journal of Health Geographics* 6.1 (2007): 9.

⁷ "About Life Alert ®." 2011. 18 Dec. 2013 <<http://www.lifealert.com/about.aspx>>

steered American companies, including Life Alert, towards the idea of a location aware community which then allows for a new applications and software to be released in the market.

According to studies and research done by companies like Gartner⁸, an American information technology research and advisory firm, and Technavio⁹, a leading technology research company that primarily focuses on emerging technology trends that can shape the market, the amount of market growth from LBS in 2008 averaged from around one billion dollars, which steadily increased to a total growth of six billion dollars in 2012.

Oddly enough, Foursquare, a leading LBS company, has fallen in revenue since it was released in 2009 claimed Sarah Frier in her Business report in the Bloomberg Businessweek¹⁰. The hype has died down due to the lack of new product. During this downturn, Foursquare is taking time to expand and update their application by adding a new search engine and creating pop-up advertising depending on your location. In 2010, Foursquare released statistics saying it had more than 6.5 million members while Facebook, the most popular social media application that provides LBS, said that just after two months of launching their location services in October 2010, more than 30 million had at least tried their places service¹¹. Some location-based services, like Foursquare, simply don't have very many consumers in the market looking for LBS yet.

Some critics of the location based services market may claim that it won't become as popular as other products and won't be able to sustain revenue and funds due to the public's privacy concerns that LBS enable stalkers to have easy access to locating their victims. There

⁸ "Newsroom - Gartner." 2013. 18 Dec. 2013 <<http://www.gartner.com/newsroom/id/600011>>

⁹ "Global Location Based Services Market 2008-2012 | www.technavio ..." 2013. 18 Dec. 2013 <<http://www.technavio.com/pressrelease/global-location-based-services-market-2008-2012>>

¹⁰ Sarah Frier. "Foursquare Gets \$41 Million Investment, Time to Grow - Businessweek." 2013. 18 Dec. 2013

<<http://www.businessweek.com/articles/2013-04-11/foursquare-gets-41-million-investment-time-to-grow>>

¹¹ "Location-Based Services: Foursquare vs. Facebook Places | Social ..." 2011. 18 Dec. 2013

<<http://www.socialmediaexaminer.com/location-based-services-foursquare-vs-facebook-places/>>

are numerous websites stating the many dangers of soliciting too much information on the internet, especially your location information. Microsoft, an American multinational corporation that develops, manufactures, licenses, supports, and sells computer software, even owns a well-organized, highly detailed web page on how to stay safe on the internet¹². All the more, in the earlier mentioned PlaceLab report it states that there is only so much that can be done to protect owners of LBS¹³.

These user concerns aren't without reason considering current American privacy law in accordance with location services and media ultimately remains unclear. In a work on the topic of LBS privacy law published by ACLU (American Civil Liberties Union) of Northern California, an organization advocating individual rights since 1920, states: "While LBS are growing more sophisticated, enabling the collection of increasingly detailed information about consumers' physical locations and other aspects of their personal lives, privacy laws are mired in the past and fail to provide the necessary legal protections for this sensitive information."¹⁴

Though privacy may be a concern to most, when more LBS are released and the idea of a more connected society through location is widely accepted, politicians will recognize the call for more laws on personal privacy to protect American citizens from cyber stalkers and hackers. These laws may introduce a requirement for higher security on the LBS companies databases. In the mean time, companies who already provide location services must include their policies on soliciting information to third party non-governmental organizations or people, somewhere easy for the consumer to access. The consumer must agree to these terms and conditions before even using the product, typically their mobile devices. Therefore, one should be aware of

¹² "Location Services | GPS and Geotagging | Mobile Phone ... - Microsoft." 2011. 18 Dec. 2013
<<http://www.microsoft.com/security/online-privacy/location-services.aspx>>

¹³ Hong, Jason I et al. "Privacy and security in the location-enhanced world wide web." *Proceedings of Fifth International Conference on Ubiquitous Computing: Ubicomp* Oct. 2003.

¹⁴ "Location-Based Services:Time for a Privacy Check-In (PDF)." 2013. 18 Dec. 2013
<<http://aclunc-tech.org/files/lbs-privacy-checkin.pdf>>

any privacy issues beforehand and choose to not use the service.

There has also been a bill supported by Senator Al Franken (Democrat - Minnesota) that was passed by the Senate panel, however this bill is still being processed and has been pushed back on the policy agenda, at least for now. This bill is titled *The Location Privacy Protection Act of 2011* and it's main goal is to close all current loopholes in federal law that allow companies to reveal a customer's location information to a third-party without consent of the customer and to create stricter penalties against "stalking apps"¹⁵. When this bill is needed due to citizen demand for privacy, it will go through the law making process at a faster rate and help create a legal right to location privacy when our society becomes excessively dominated by location-based services.

Considering the growing number of consumers using LBS services because this area of technology's ability to affect and improve almost every application, analysts have predicted that the location services market growth to be at least 10.3 billion dollars by 2015 as stated in the *Location-Based Services Market Forecast 2011-2015* done by Pyramid Research¹⁶, a company who analyzes emerging markets and technologies and has done so for over 25 years. In spite of these statistics, ABI research announced that the location-based services market will grow by 321.4% reaching 1.8 billion in 2015¹⁷. Clearly, these two figures are different, but they both suggest that the market for location based services will increase significantly.

In recent years, the expansion of technology in America specifically has created a new market in location-based services. Does this market have faults? Yes, but regardless of how many flaws we unearth, these services are continuously being improved and becoming more

¹⁵ "The Location Privacy Protection Act of 2011 (S. 1223) - Al Franken." 2012. 18 Dec. 2013
<http://www.franken.senate.gov/files/documents/121011_LocationPrivacyProtection.pdf>

¹⁶ "Location-Based Services - Pyramid Research." 2011. 18 Dec. 2013
<<http://www.pyramidresearch.com/store/Report-Location-Based-Services.htm>>

¹⁷ "Location-Based Services Report | FCC.gov." 2012. 18 Dec. 2013
<<http://www.fcc.gov/document/location-based-services-report>>

popular, hence creating a new market in America. Regardless of the statistics or information gathered by third party sources we see a general steady rise in location based services, meaning that we have created a new market in America. It can be determined that America, alongside the rest of the World, has recently been overwhelmed by location based services because LBS does in fact, though nearly unpredictable, have a fast growing market, growing in popularity and revenue and it will only continue to increase in size. However, this quite accurate prediction cannot be fully assessed because the maximum amount of possibilities of LBS have not been discovered.

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