

# Internet of Health (IoH) Integration of Social Media into Telemedicine

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## Extended Abstract

Recent research reports that the telemedicine market is expected to grow from \$14.2 billion in 2012 at a rate of 18.5% annually until 2018(Web-1). Especially the elderly people and housebound patients' treatment progress and their health status need to be monitored in a convenient way. A variety of methods are used for sending remote patient data including GSM, SMS and internet services. However, each of these methods has their advantages and drawbacks. There is an urgent need to provide telemedicine and healthcare in an affordable, efficient and fast way. Hence, we conducted a study that combines telemedicine and social media.

Twitter is usually the most commonly used social media application in many countries with 288 million monthly active users worldwide and it also supports 33 languages. 80% of the Twitter users are on mobile (Web-2). Fortunately, Twitter has a strong user privacy policy that doesn't associate users' IP address with any other personally identifiable information to identify them personally, except in case of violation of the Terms of Service (Web-3). Google, the leader of internet related services, has already initiated research in medical applications such as use of robots in surgery room (Web-4).

The specific objective of this study is to integrate widespread "social media, cloud and recipe systems" for infrastructure such as "twitter, google docs, and IFFTT" into telemedicine. This study introduces a new concept that we named as *Social Media of Health* (SMoH) and *Internet of Health* (IoH). Our major motivation behind using the social media and internet for the purpose of telemedicine is to take advantage of existing infrastructures with extended uptimes provided by Twitter, Google, etc. Telemedicine through social media becomes even more efficient and convenient for the users that reside in the developing and underdeveloped countries. Those patients do not have easy and quick access to healthcare.

To demonstrate the proof of concept and use of social media in telemedicine, we acquired several biomedical signals that can indicate the health status of patients including heart rate, breathing rate, oxygen saturation, EMG, ECG, and Galvanic skin response. The number of monitored signals can be tailored to the needs of the patients. For example a cardiac arrhythmia patient's data will be comprised of mainly heart rate and ECG signals. These signals are collected and processed using an Arduino system connected to the relevant sensors. The Arduino system has the capability to send the acquired signals through Ethernet directly to Twitter. To avoid continuous tweets indicating current health status, a tweet is only sent when the acquired signal is above a predetermined threshold while the whole data are saved in Google Docs (a highly popular service for storing and collaborating on documents over the Internet).

There are many potential applications of IoH and SMoH, including tracking, demographic mapping and predicting the emergence and spread of epidemic diseases in populations. Hence, the outcomes of this study can have social and economic impacts on the society, especially on the underprivileged population where they have limited access to hospitals and affordable healthcare.

Web sites:

Web-1: [http://www.researchandmarkets.com/reports/2775117/global\\_telemedicine\\_market\\_outlook\\_2018](http://www.researchandmarkets.com/reports/2775117/global_telemedicine_market_outlook_2018) consulted 30 February. 2015.

Web-2: <https://about.twitter.com/company> consulted 30 May. 2015 consulted 30 February. 2015.

Web-3: [https://twitter.com/privacy/previous/version\\_1?lang=en](https://twitter.com/privacy/previous/version_1?lang=en) consulted 30 February. 2015.

Web-4: <http://au.ibtimes.com/google-now-enters-operating-room-assist-robotic-surgeries-1434647> consulted 30 February. 2015.