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## APPLICATION OF INTERNET OF THINGS IN FRAUD DETECTION IN MEDICLAIM INSURANCE POLICY

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### ABSTRACT

A disease or an accident requiring hospitalization is not just a major threat to one's health but to our savings as well. Health insurance requirement differs from person to person. This is why there are as many plans as consumers can avail. As there are a large number of policies clients, henceforth, are committed to avail dealt by a large number people, there is always a chance of Health insurance fraud. Health insurance fraud is any act committed with the internet to obtain a fraudulent out come from an insurance process. This may occur when a claimant attempts to obtain some benefit or advantage to which they are not otherwise entitled. In case of healthcare insurance false billing is one of the major threats. Since, Internet of Things (IoT) provides new tools to monitor and manage health conditions, including doctor and patient both. In this paper an attempt has been made to find how Internet of Things (IoT) can be used to prevent Health insurance fraud.

**Keywords:** Heal care insurance, IoT, Health Insurance Fraud.

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### I. INTRODUCTION

Health care has become a major expenditure .The size of the health care sector and the enormous volume of money involved makes it an attractive fraud target. Healthcare fraud, based on the definition of the National Health Care Anti-fraud Association is an intentional deception or misrepresentation made by a person or an entity, with the knowledge that the deception could result in some kinds of unauthorized benefits to that person or entity [1].

The Internet of Things is providing new tools to monitor and manage health conditions. These devices collect data about existing health conditions, thereby giving individuals and their health care providers more information to make health care decisions. Diseases can be grouped into different categories and all types of diseases require a continuous monitoring of health. Internet of Things (IoT) is one of the most sophisticated technologies used in case of healthcare monitoring. It has the potential to not only affect the health, safety and productivity of people but this also has a major socio-economic impact on common people. We have been aware of the fact that the increasing use of sensors by medical devices, remote and continuous monitoring of a patient's health care can be possible.

This network of sensors, actuators and other mobile communication devices, referred to as the Internet of Things for Medical Devices (IoT-MD), is poised to revolutionize the functioning of the healthcare industry[1][2] . It is impossible to accurately quantify the cost of health insurance fraud but, with real and sustained growth both of premiums and number of lives covered, the problem is set to escalate [4].

This paper is organized as follows: Section 2 describes about internet of things, section 3 discusses about healthcare insurance and fraud the applications of IoT in healthcare and the current trends, section 4 discusses about the case study about real-time remote diagnostics, section 5 describes a real world project experience on developing products for rural healthcare, section 6 discusses about challenges for the penetration of IoT in the healthcare, section 7 discusses the roadmap for IoT and the future of the healthcare delivery model, section 8 concludes the paper by summarizing the discussion points from this paper and section 8 provides research references.

### II. THE INTERNET OF THINGS

Internet of things (IoT) is nothing but the connectivity of theeverything. IoT connections can be machine-to-machine (M2M); machine-to-human (M2H); or human-to-human (H2H). In M2M the domestic appliances like refrigerator, micro-oven, air conditioners, television, mixer and grinder, dishwasher, window control etc., automobiles like car, truck, bus, scooter, aerorplane, constructions like bridge, rail track, roads are connected through sensors are connected through a network. In M2H wearable devices, hospitals, doctors, human body, medical shops are

connected through networks. Social networks like Facebook, LinkedIn , and Twitter are the examples of H2H. Therefore, IoT is not just the networked connection of physical objects, but also it is the links between people, process, knowledge, and data.

With IoT a huge number of objects, things, sensors, and devices are connected through the information and communications infrastructure to provide value-added services. The IoT allows people and things to be connected anytime, anywhere, with anything and anyone, ideally using any port/network and any service [5]

### III. HEALTH CARE INSURANCE& FRAUD

Healthcare insurance is a form of insurance that pays for medical expenses. If one is covered under health insurance, one used to pay some amount of premium every year to an insurance company (from where he/she has purchase that policy) and if one had faced an accident or undergo an operation or a surgery, the insurance company will pay for the medical expenses. With health insurance providing a world of benefits to people, fraudulent claims are on the rise. Frauds can be committed by anybody. It can be committed by a customer (policyholder), a health insurance company or even its employees. Frauds committed by a policyholder could consist of members that are not eligible, concealment of age, concealment of pre-existing diseases, failure to report any vital information, providing false information regarding self or any other family member, failure in disclosing previously settled or rejected claims, frauds in physician’s prescriptions, false documents, false bills, exaggerated claims, etc[6].

#### Fraud Claims In Indian Scenario

Fraudulent and dishonest health insurance claims are a major morale and moral hazard not only for the health insurance industry but even for the entire nation’s economy. The essential components of fraud include intention to deceive, derive benefits from the health insurance industry, preparation of exaggerated or inflated claims or medical bills and an intention to induce the firm to pay more than it otherwise would. Devising innovative methods and tactics including pressure tactics, favoritism and nepotism form a part of fraud which is a hazard growing by leaps and bounds since the last decade. It is estimated that the number of false health insurance claims in the industry is approximately 15 per cent of total claims. The report suggests that the healthcare industry in India is losing approximately Rs. 600 to Rs. 800 crores incurred on fraudulent claims annually [6].

### IV. APPLICATION OF INTERNET OF THINGS IN FRAUD DETECTION.

Most common reason of healthcare fraud is false billing. It is very difficult to check every expenses submitted by the patients on the basis of secondary information (information given by patient himself). Figure -1

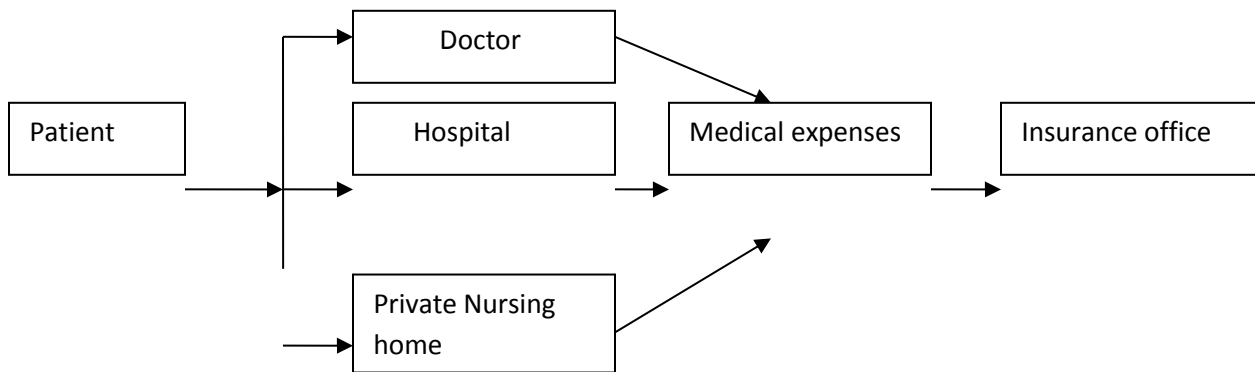


Fig-1 Conventional method of producing medical bill

This method of providing information can only check when this information (what actually happened to the patient and the true medical expenses) can be monitoring directly by the Insurance office through the smart healthcare devices and collect the first hand information Figure-2. Here we are monitoring patients all short of healthcare problems

using IoT and gather what actually happened to the patients and the original payment he/she had made to the doctor, hospital or private nursing home.

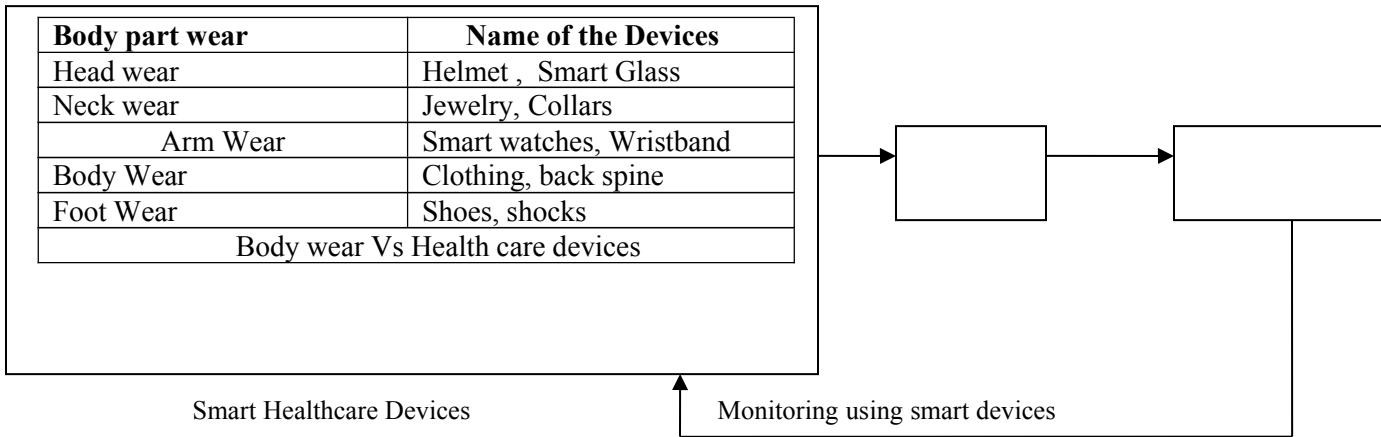


Fig -2. Health care automation using IoT

Here with the help of smart healthcare devices the different parts of the body of the patient is continuously monitored with the help of Internet of things so that if any problem occurs in any parts of the body it can be directly observed. At the same time for automation of instruments to monitor patients on a regular basis. Therefore the first hand information (primary data) is directly available to insurance office for evaluation which can prevent for submitting false claim.

**V. CONCLUSION:**

Health insurance fraud occurs when a company or an individual defrauds an insurer or government health care program. The manner in which this is done varies, and persons engaging in fraud are always seeking new ways to circumvent the law. Therefore it requires continuous monitoring, therefore, Internet of things only helps when it is properly used and subsequently computer literacy is increased.

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