



# INTERNET OF THINGS IN HEALTH CARE USING FOG COMPUTING

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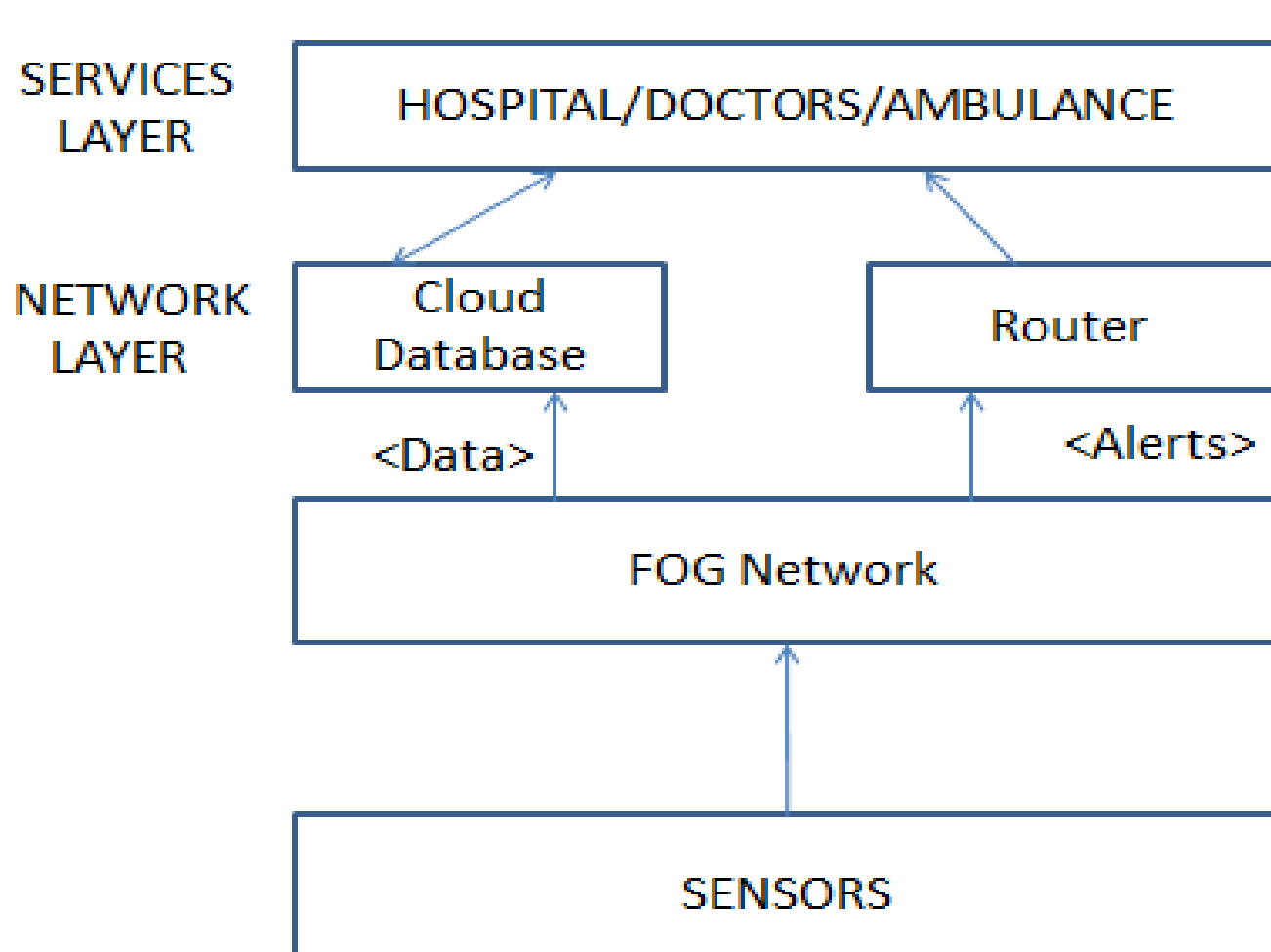
## Abstract:

Internet of Things has seeded in many areas of humanoid lifestyle, of which the health care is the most crucial area on which the focus is to be induced. This paper will describe the use of smartphones as a sensor to keep the track of the health of the patients. Considering the various disadvantages of using cloud computing, this paper will be talking about the use of fog computing for faster analysis of data. Fog Computing will emphasize on three types of patients and those would include the ones who are critically Injured or just generally hospitalized or the ones who might in future need occasional monitoring since they were discharged depending upon their current health status.

## Architecture:

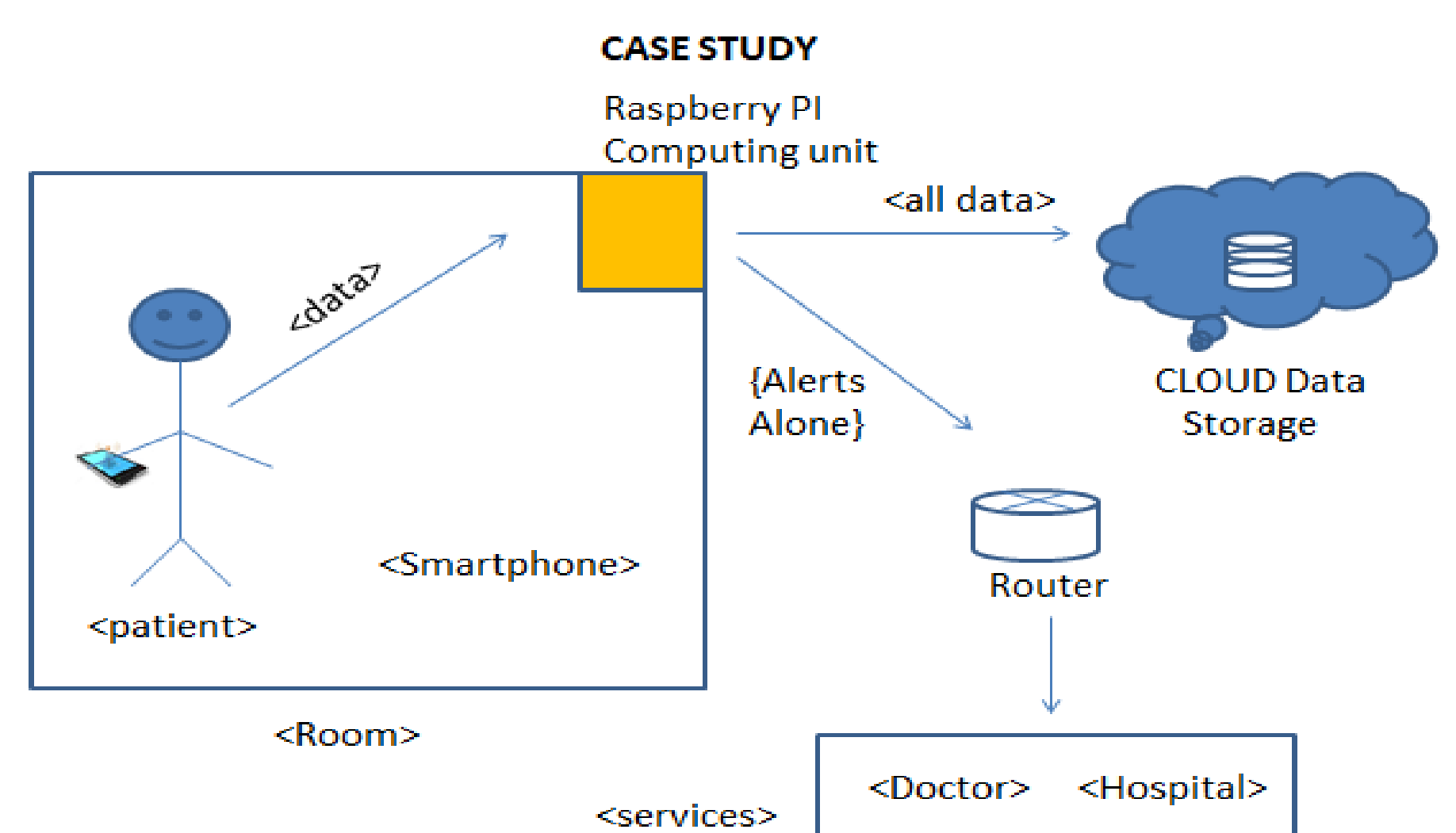
The proposed architecture is to collect and analyze data by a computational unit present at a close range to the sensor. This unit is a fog device and is in an edge network. Data is sent to the fog device and they are analyzed by comparing the data to a threshold value depending on the type of the data received from the multiple sensors present in the vicinity. Once the condition is true, an alert is generated and sent to the doctors and other emergency services. Furthermore, whenever an alert condition arises all the data within the fog device is immediately sent to the cloud database by a forced update. This data can be accessed by the hospitals and the required paramedics to properly help and prepare for the patient to be brought into the hospital.

### ARCHITECTURE



## Case Study:

A case study involving the use of a Raspberry Pi as a fog device, on the edge network and a sensor that detects the fall which is inbuilt in all smartphones. The CPU utilization was negligibly 0% and the heap size utilization was 34144KB which is bearable by the Raspberry PI. This proves that this architecture is practically possible and will the processing speed.



## Conclusion:

The proposed model in this paper achieves accuracy in data and data consistency which is pivotal in medical data applications. This Results in fog computing having an upper hand in performance, mostly because it has lower latency and has a much better decision-making model in critical scenarios for time-bound applications.