An Architecture and Protocol for Smart eHealth Monitoring Using 5G

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Introduction

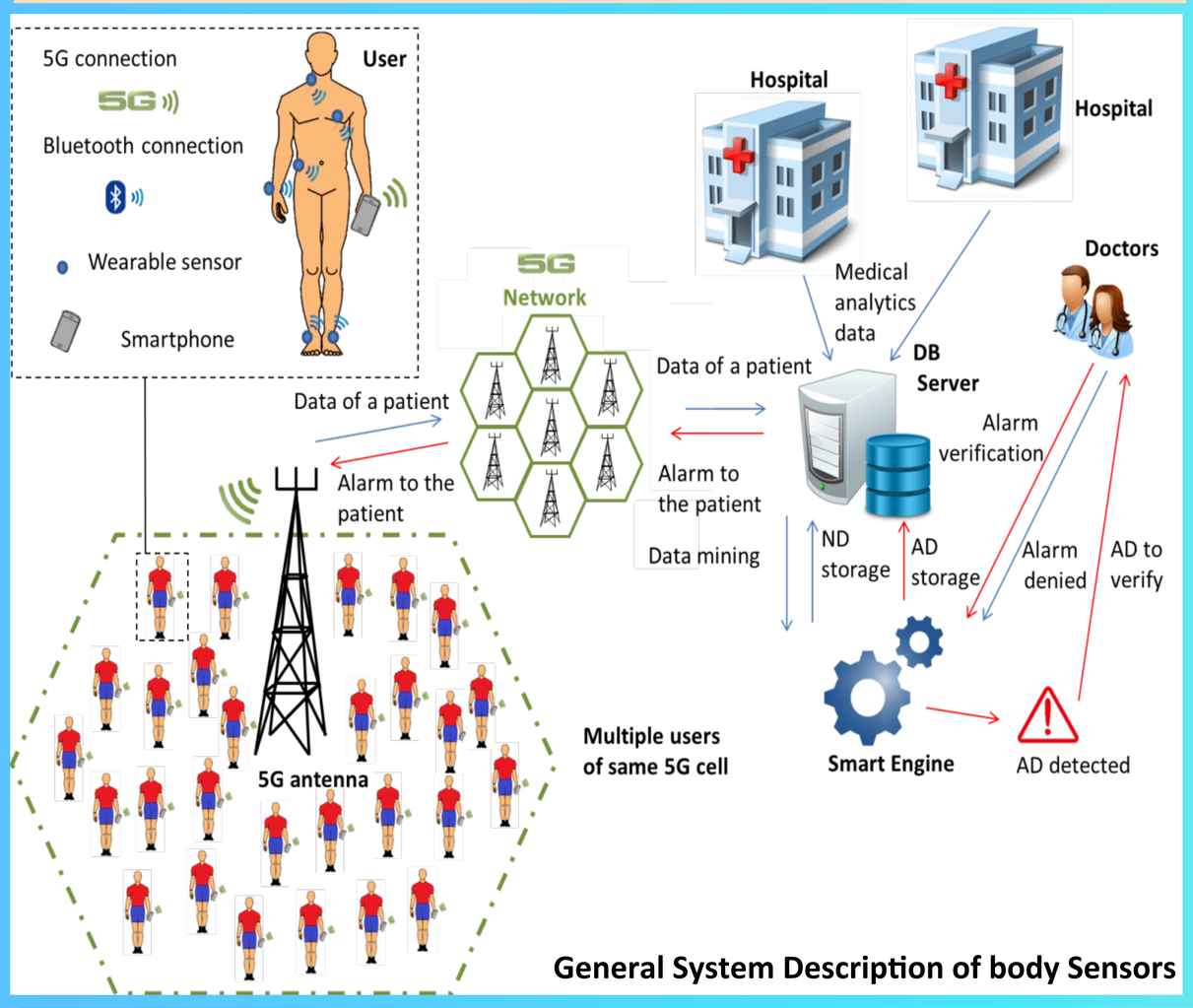
The number of people that need continuous monitoring. Such as H*eart disease, Cancer, chronic respiratory diseases, bone disorders, diabetes.*Health self-management improve the self-care and ensure an easy interaction between doctor and patient in order to increase the quality of life of the patient.

Objective

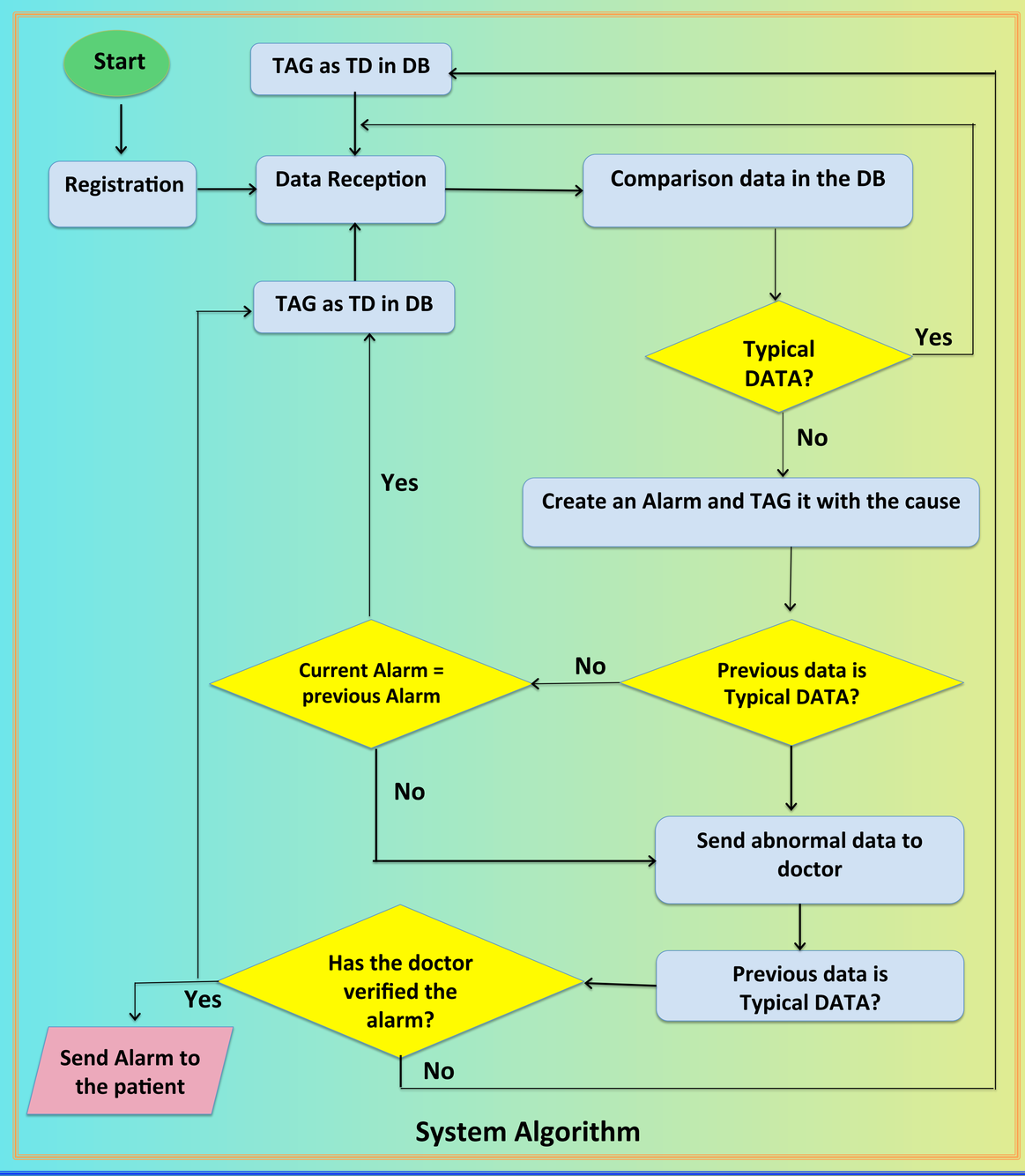
- Develop an architecture for eHealth monitoring of chronic patients.
- Health meters from a smartphone or wearable devices.
- Activity meters: velocity or position from the wearable devices.
- An alert can be triggered and sent to the doctor.

Proposal Method

- The body sensors to collect information.
- Mobile devices to send information.
- 5G Networks.
- The DB server.
- Alert system.



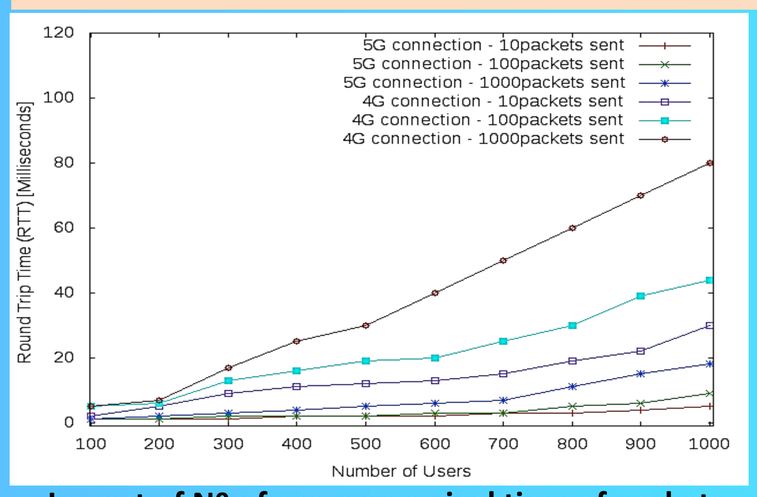
General System Description of body Sensors



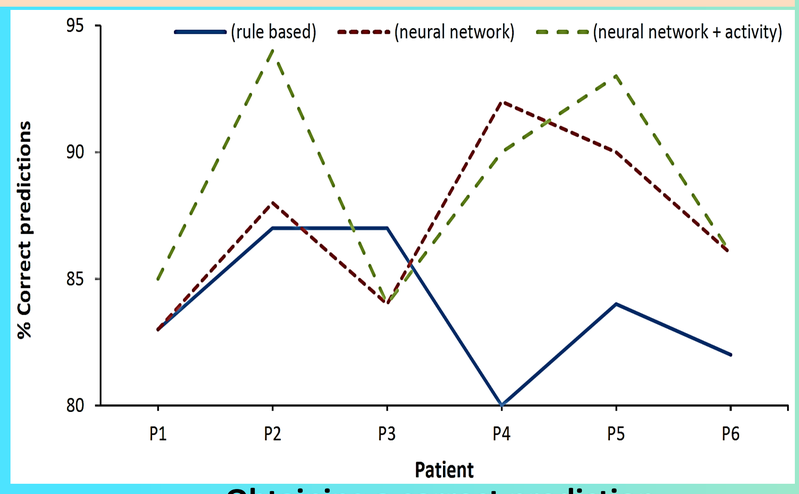
System Algorithm

Experiments and Results

- Design a wireless mobile topology.
- HTTP server, reverse proxy (NGINX) server and mobile users.
- Tools: Iperf, ping, curl and wireshark.
- Range of users between 100 and 1000 users.



Impact of Nº of users on arrival time of packets



Obtaining a correct prediction

References

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Conclusion

✓ we develop an intelligent system for smart continuous eHealth monitoring, able to diagnose patients and generate alarms.
✓ We simulated 4G and 5G technologies in order to demonstrate the need of 5G technology in our architecture.
❑ ***Our future work:***
○ Training the intelligent system with the data of each patient separately and let the system send recommendations to the patients.