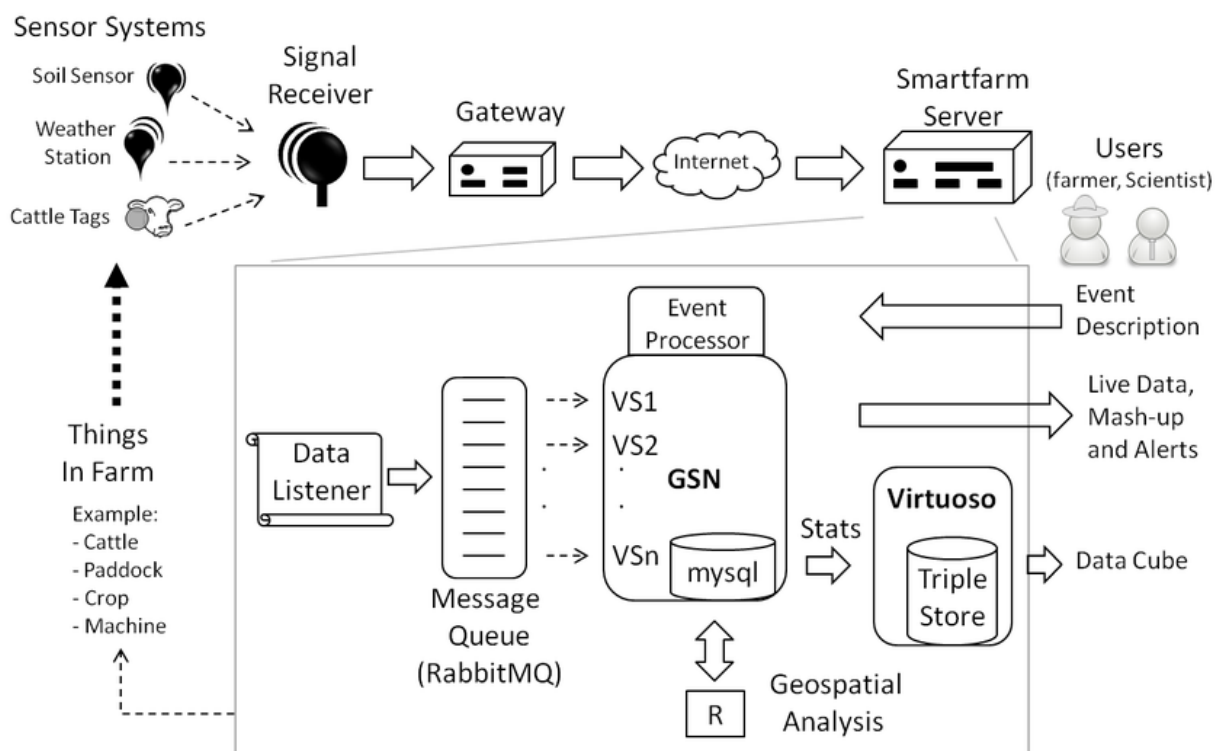


Project Design Phase-I Solution Architecture

Date	19 September 2022
Team ID	PNT2022TMID14367
Project Name	Project – Smart Farmer – IOT Enabled Smart Farming Application
Maximum Marks	4 Marks

Solution Architecture Diagram:



- The signal received from all the sensors are collected by a gateway located on the farm and sent to smartfarm servers through a high speed broadband network.
- The smartfarm server contains four software components: data listener (a pythonscript library), RabbitMQ(a message queue system), GSN (a sensor

networkmiddleware) and Virtuoso(a triple store enabled DBMS).

- The data listener directly receives data from the farm, transforms them to text messages and then publishes the messages to the message queue.
- The GSN is configured with virtual sensors which subscribe to these messages.
- A soil sensor node contains sensors measuring ground temperature, soil temperature, volumetric water content (VWC) and electric conductivity (EC).
- A weather station node contains sensors measuring air temperature, photo-synthetically active radiation (PAR), pressure, wind, rain and hail measurements.
- These nodes also contain sensors to measure temperature, battery status, solar voltage and current of the platform in which the sensors are embedded.
- Finally, the cattle have active tags attached to their ears, which send radio signals to base stations. Based on the time lapsed to receive the signal at three base stations, the locations of cattle are determined.