

Project Scenario 5: Athletic Health Compliance & Monitoring System

Note: This scenario will provide the material needed to create the artifacts as specified on the Project page. Though you will not develop the actual system, it may be a good idea to familiarize yourself with the required technology in order to produce more accurate plans.

Problem Statement

A European athletic association similar to the NCAA has been under increased scrutiny over the effectiveness and accuracy of their Drug Policies. An independent commission has been established with the sole purpose of improving the monitoring and reporting of student athletes' use of illegal and banned substances. Specific funding has been secured for this purpose. Your team is being asked to create a system that will interact with Health Monitoring Kiosks (HMK) installed at sports facilities at each of the participating educational institutions. Among the primary goals is the ability to deploy, configure and monitor these kiosks; have them operate in a private network and provide diagnostics, alerts and reporting to the system. Among other things, this system will facilitate the monitoring of compliance by institutions and their athletes; alert the appropriate authorities within the association of any suspicious health conditions; maintain records of kiosk interactions and results; and provide analysis and reporting at a local and national level. Your clients will be able to manage and configure the kiosks in advance of deployment as well as remotely once they are in place. They will be able to enable and disable HMKs onboard computers and their sensors (blood analyzer; blood pressure; temperature; height; weight, etc.) via remote connection. Operators should also be able to retrieve previously stored data from the system and examine and map the information pertaining to any of the HMKs sensor data. The systems should also allow for expanding the number of locations and HMKs and diagnose their status remotely in case of tampering or malfunction. The users will start with your general solution and be able to configure the product to meet the specific needs.

As part of the system, it is important that the HMKs software be able to run autonomously and continue to process and store data even if a network disruption occurs. Once the network connection is recovered this data would then be transmitted to the system to prevent any data losses.

The requirements for this system are given in the list below as desired features for the overall system. The list is neither exhaustive nor definitive. It is up to your team to develop a list of features that best fit the defined scope of your application.

Potential Features

1. Health Monitoring Kiosk (HMK)
 - The kiosk sensors are typically deployed by retrofitting a standard health station with corresponding medical devices. These devices capture vital signs and other typical health measures.
 - New types of sensors are being developed to be able to capture other types of data and your system must account for enhancements like these in the future.
 - The sensors capture data and store it upon completion of a health exam. They transmit the data based on a programmed schedule by communicating to Central Health Hub.
2. Central Health Hub (CHH)
 - The Central Health Hub is the focal point for all data storage and data mining.
 - The cloud-based infrastructure that supports the CHH has been contracted to a third party.
 - Even though power and networking infrastructure will be in place, the specification of the system's software environment will be addressed by your team and you must account for system recovery if/when a network disruption were to occur.
3. Administration
 - Can add and configure new HMKs
 - Be able to filter data coming from specific location(s)
 - Control access of specific users to specific locations
 - Report on critical events (i.e. HMK stops transmitting; medical device or sensor appears not to be functioning, etc.)
4. Monitoring
 - Given appropriate access, users can monitor the status/mapping of HMK data in your solutions GUI
 - Users can retrieve historical data and created reports and produce compliance maps

Remember, these are suggestions. Feel free to add to or modify these requirements based on the design of your system, research and your domain analysis. Your instructor may assist you and clarify if need be.