Project Scenario 2: Remote Sensing Management & Tracking

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

An environmental not-for-profit organization has won a national grant to implement a general purpose Environment Remote Sensing System (ERSS). Their primary goal is to be able to deploy, configure, and monitor remote sensing stations across National Parks in the Kingdom to be able to, among other things, monitor migration and behavioral patterns of endangered and protected species. Clients will be able to manage each of the sensor stations, expand the number of locations and sensors from a location; and monitor their status remotely. The users will start with your general solution and be able to configure the product to meet the specific needs of each location.

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

Potential Features

1. Sensors
    o   Typically deployed by affixing a small device to a specimen in question. A small bird, for example, may wear a miniature <backpack> with a device that captures body temperature, GPS location, and degree of activity (gyroscope). On the other hand, a bear may wear a collar that, in addition to the above, may also possess the ability to record sound or images.
    o   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.

- o The sensors capture data and store it at configurable intervals. They transmit the data based on a programmed schedule by Bluetooth 5 LE to Sensor Station(s) and/or when signal strength is found to be adequate.
2. Sensor Stations
   - o Sensor stations are deployed in the proximity of the species being studied. The Bluetooth 5 LE sensors and hardware are deployed by a third party and feed to a cloud-based environment where your software solution will run.
   - o The sensor stations, though the cloud, provide an API to a national grid which allows personnel at the DEC (Department of Environmental Conservation) headquarters in Washington to also run your software and monitor the status of data in the grid.
3. Administration
   - o Given appropriate access, users can monitor the status/mapping of sensor data in your solutions GUI
   - o Users can retrieve historical data and created reports and produce migration maps
4. Monitoring
   - o Can add and configure new stations and sensors to the ERSS
   - o Be able to filter data coming from a specific location(s)
   - o Control access of specific users to specific locations
   - o Report on critical events. (i.e. sensor stops transmitting; specimen has not moved in days, etc.)
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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.