Mountain Lion Detection System

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1 Introduction and Overview

This system will be used to monitor the activity of mountain lions in the area using a noise detection system. An alert will be generated and sent to the park ranger station when noise is detected. The system has been made to be easy to reconfigure into other parks if necessary. This system is necessary to keep track of the mountain lions to ensure their activity in the ecosystem as well as the safety of any nearby pedestrians. This system will primarily be used by park rangers.

This document will divide the requirements of this system into user requirements, system requirements, and other requirements outside of the user and system requirements.

2 User Requirements

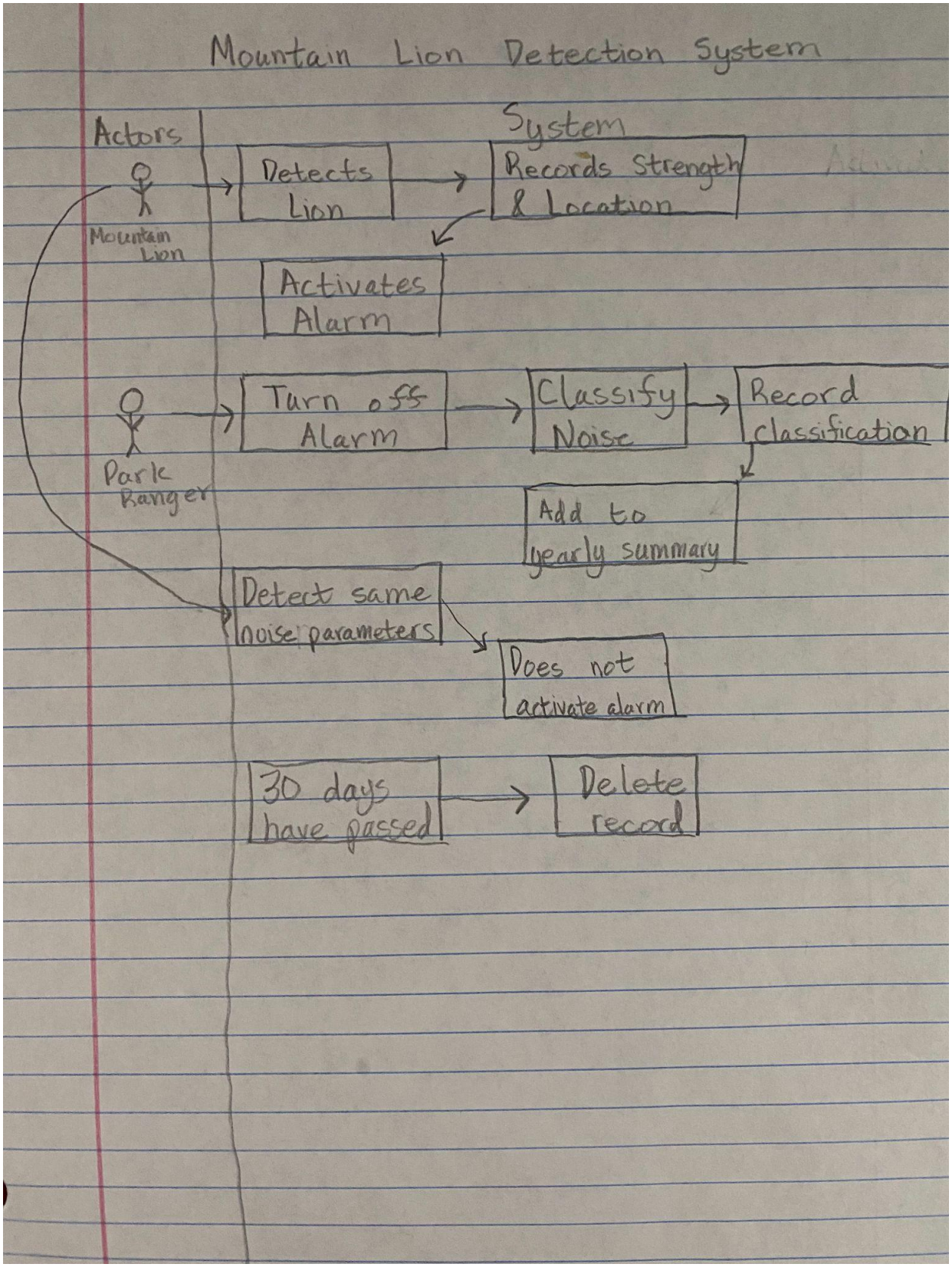
The system will use a control center at the park ranger station to send all the information the noise detectors will process. The noise detectors have a range of 5 meters and can process the type of noise, strength of the noise, and noise location, all of which will be sent to the control center in the form of an alarm. When the alarm is activated it will sound off until a park ranger can deactivate it, meanwhile laso classifying the likelihood of the sound being a mountain lion into three categories:

definite, suspected, and false. The alarm will not activate if the same noise is detected again after the alarm is deactivated. The system will save notices of each alert that will last up until 30 days and a summary report every year.

3 System Requirements

3.1 Functional Requirements

This system will run using a noise detector with a detection range of 5 meters which will send all of its information to the control center at the park ranger station where it will be classified.


Mountain Lion Detection System
Actors
System
Mountain Lion
Detects Lion
Records Strength & Location
Activates Alarm
Park Ranger
Turn off Alarm
Classify Noise
Record classification
Add to yearly summary
Detect same noise parameters
Does not activate alarm
30 days have passed
Delete record

Detects Lions: The noise detection system will detect lions whenever they get within the range of the noise detector.

Records Strength and Location: The system will keep a record of the noise detected by strength of the noise and where it was detected.

Activates Alarm: Once a noise that the system deems to be a lion is detected, an alarm will be set off at the control center which will not be deactivated until a park ranger deactivates the alarm.

Classify noise: Once a park ranger goes to deactivate the alarm they must classify the noise by if they think the noise belongs to a mountain lion. They can be classified in one of three categories: definite, suspected, and false.

Record classification: Once the noise is classified, it is then recorded onto the system.

Add to yearly summary: When the noise is recorded onto the system, it is also saved onto a yearly summary map that maps out classification, strength, and location.

Detects same noise parameters: If the detected noise's strength and location is the same as one already recorded.

Does not activate alarm: If a noise with the same parameters is recorded, the alarm will not sound.

30 days have passed: Once the time period of the initial recording of the noise has passed 30 days.

Delete record: Once the expiration date has passed the noise will be deleted from the database to conserve space.

3.2 Non-functional Requirements

The system should be able to reliably pick out the noises of mountain lions and distinguish between the noises of mountain lions and other animals and humans on the mountain. This system should also be able to easily be transferred and still be usable to other parks. No one else should be able to access the control console other than the park rangers of the location.

4 Other

Potentially a noise detector upgrade in the future to increase the range of each noise detector. There’s also a risk that the noise system will pick up the same animal but at a different strength due to multiple factors such as the health of the animal.