Disease Monitoring System
Project Update 1

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1 Problem Statement

Contagious diseases are a serious threat in colleges, especially because it is very easy for them to spread in places like classrooms, hostels and the mess. This results in a viral outbreak of the disease. Minor diseases, such as viral flu, conjuctivitis and common cold are among the most common on campus. Our application attempts to reduce the number of people affected by these diseases.

2 Original Proposal

A mobile application, with access to both WiFi and Bluetooth. It relies on the user announcing through the application that he/she is sick. Whenever a student comes close to another student, the students' devices are within each other's Bluetooth ranges. The app checks if either of the two students are sick. In the event that one of them is sick, the other student receives a notification on his phone instantly, alerting him to this fact.

3 Original Intelligence

Once a respectable database containing details about the infected students is built, it can be used to determine which students stand at risk to catch diseases, as well as from whom. It does so by forming a graph of all interactions between devices. When a person announces he/she is sick, all the people they have met in the recent past for a significant duration, are alerted.

The graph can also be used to determine if people who are sick haven't notified on the app. It does so by traversing the graph and finding all the people who the person has met. This is done for all the people who have caught the disease and the common among them are signaled as probable sources. It is also possible to warn a patient to move to a safe distance in case he/she is too close to an infected patient during the times of the disease spreading, thus reducing the risk. This could be done through a small sound emitting device that beeps every time a patient comes too close the infected for more than a certain predetermined time depending on the disease.

4 Changes Made

- The notification being sent will be through NFC card, which is a part of most new mobiles, and not bluetooth.
- The intelligence in the system will include storing the GPS location of the person and based on the places all the people with disease have visited, find areas which are more conducive to catching the disease.

5 Road Map

These are the following steps involved in making a working prototype:

- A basic app which has NFC integrated to send and receive notifications.
- A backend database to store the details of the the people with diseases and to store who met whom and when.
- A connection between the database and the app.
- Adding the intelligence into the system.

The goal achieved so far is the basic app with NFC integrated. One difficulty that we are facing right now is that the NFC card being used is only detected when kept on top of the mobile. So we are still searching for solutions to work around this.

6 Expected outcome for next review

To create a databse for the details and to create the connection between the app and the database.