Use case: Medical Reporting

Description:

The user of this app has taken a medical test which is positive. The positive medical confirmation must be submitted to the system with no action from the user.

Actors

The medical professionals, health statistic dashboard, the track and trace system’s database, and the user of the system.

Pre-conditions

The user of the app would has preregistered with the app, generating a unique ID. This individual has taken a test in any venue: hospital, drive-through, mail-order testing services or doctor’s surgeries. These venues must have valid login credentials for the national NHS user authentication system.

Post-conditions

The system would update this user from any level to red level. The system also flags the unique ID to notify other users’ status based on their interactions with this user if they were around him for a prolonged period of time. This notification is sent based on the interaction stored locally on the phones, Bluetooth for real time interaction and all interaction locally stored on the users’ mobile phone. Users in prolongated contact with the infected individual will receive a notification on their mobile advising them to take a test.

Main Scenario

1. The user has taken a test in any venue at any date because they have symptoms of the COVID-19.
2. A text message is sent to the user’s phone device confirming that the test is positive.
3. The user’s mobile phone kernel detects any message based on particular words (COVID, Corona, positive, medical and test). This message is loaded in the kernel module.
4. If it is positive, the user is reported as being infected. The status of this user is updated, changed to red.
5. This information is sent to the database as well as the dashboard. The database maps the user ID with the red status.
6. The track and trace system notifies all users who had / have proximity in the past three days with this user, based on their interactions.
7. If the interaction with the user who positive to the COVID-19 test is above a threshold of one minute, a notification is sent to the users’ phone. This notifies them they have been in contact and might be infected. They are advised to take a medical test and their status is changed to amber.
8. This information is updated and sent to the database, as well as the dashboard which updates the number of confirmed, as well as possible, COVID-19 cases.
9. Once the dashboard has been updated, all users in the area of the infection are alerted that someone near them has contracted the COVID-19. This system uses Bluetooth so that any individual in the perimeter of this user will receive a notification that they are in presence of someone who is infected.
10. The map is updated based on the density of population and the number of users in red or amber level. This allows them to plan their trips when going out for groceries and may discourage them to go outside if they live in a dangerous area.

Alterative Scenarios

1/ The test is negative: In this scenario, the user receives a negative confirmation. Since he is not infected, the database acknowledge that he has taken a test by changing his level to green. If the user’s status was amber, the dashboard updates the number of possible cases (decreases by one).

2/ Verbal confirmation: the user has the possibility to update his status manually. Once he has changed his status, the system is updated bas on the change of user status. It then warns the track and trace system. The database updates the user ID with the new red status, any individual in contact with this user in the previous three days receive a notification and the main dashboard is updated.

3/ e-mail confirmation: the phone kernel uses a similar message word detection to the text message one. The system will behave accordingly if the test is positive as described in the main case.

4/ No internet connection: If the user’s mobile phone does not have internet connection at the reception of a message or when the status is updated, the change of level is locally stored on the user’s mobile app with no update on the map about increased number of confirmed cases. Using Bluetooth, the user’s phone connects with other users in his perimeter and a notification is sent to them. As soon as the user’s mobile can connect to internet again, the device can communicate with the track and trace system, updating the database, main dashboard and warning other users.