A Hardware Devices

User Devices

Dongles - Small, cheap BLE devices carried by users. Record/Upload history of visited beacons and compute risk

OR

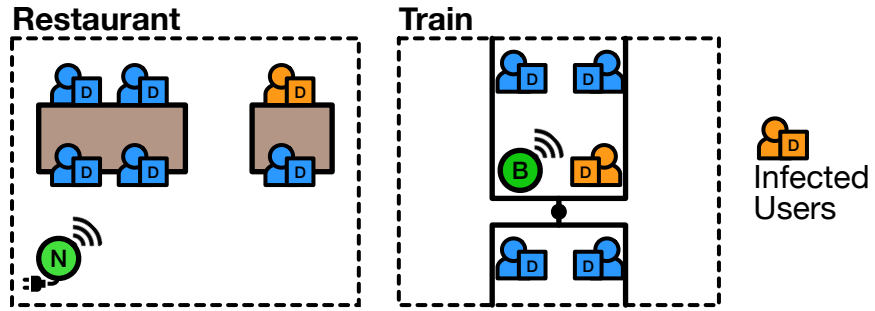
Smartphones - Users may use their existing smartphones with a software app that emulates the capabilities of the hardware dongle

Infrastructure

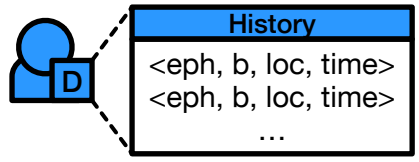
Beacons - BLE devices that serve as localization points for specific places

Network Beacons - Have external power and network connectivity. Broadcast risk information. Serve as proxies between dongles and backend

B Installation and Collection

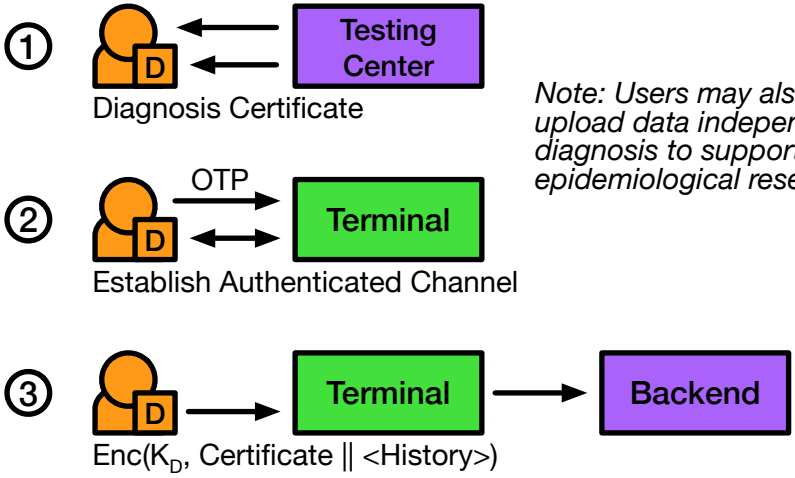


(Network) Beacons are placed in specific locations, either by health authorities or organizations that voluntarily place them on their premises



User devices record messages received from nearby beacons for later use (upload / risk notification)

C Testing and Uploading



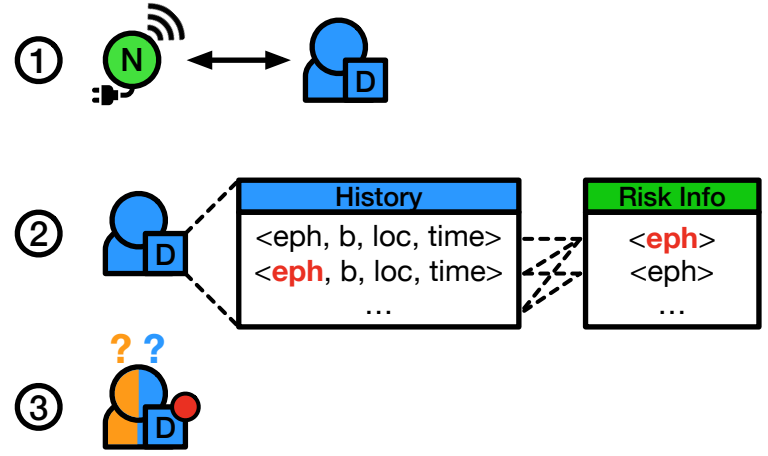
Note: Users may also upload data independent of diagnosis to support epidemiological research.

(1) When a user receives a positive diagnosis, both they and their device receive a diagnosis certificate (signed by the health authority)

(2) If the user wishes to upload their data, they interact with their device through a trusted terminal by entering one of their one-time passwords (OTPs) for authentication

(3) The user device uploads the history of messages received from nearby beacons along with the certificate, using the key shared with the backend

D Risk Notification



(1) Network Beacons continuously broadcast out risk information. User devices listen to individual region streams based on their previous locations (from their recorded history)

(2) User devices compare the risk information against their recorded history of beacon messages

(3) If there is a match, the user device notifies its user to get tested (and/or quarantine)