

CHIRP

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CS294-84 Interactive Device Design

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Inspiration

- On Monday 30 Sept, 2013, UC Berkeley experienced a **campus-wide power outage and manhole explosion** near Cal Hall, **injuring several students**.
- **SMS Warn Me** system orders to evacuate campus were **delayed over 20 minutes** and lacked details.
- Many areas of campus were left dark, several students were trapped for hours in elevators, and a group of disabled students were stranded on a 3rd floor.
 - Campus security was overwhelmed due to lack of power and communications
 - many students were exposed to danger

Solution

Chirp, a **low-cost device** distributed to large populations that can provide mesh network **communication during emergencies**, allowing people to provide important safety information.

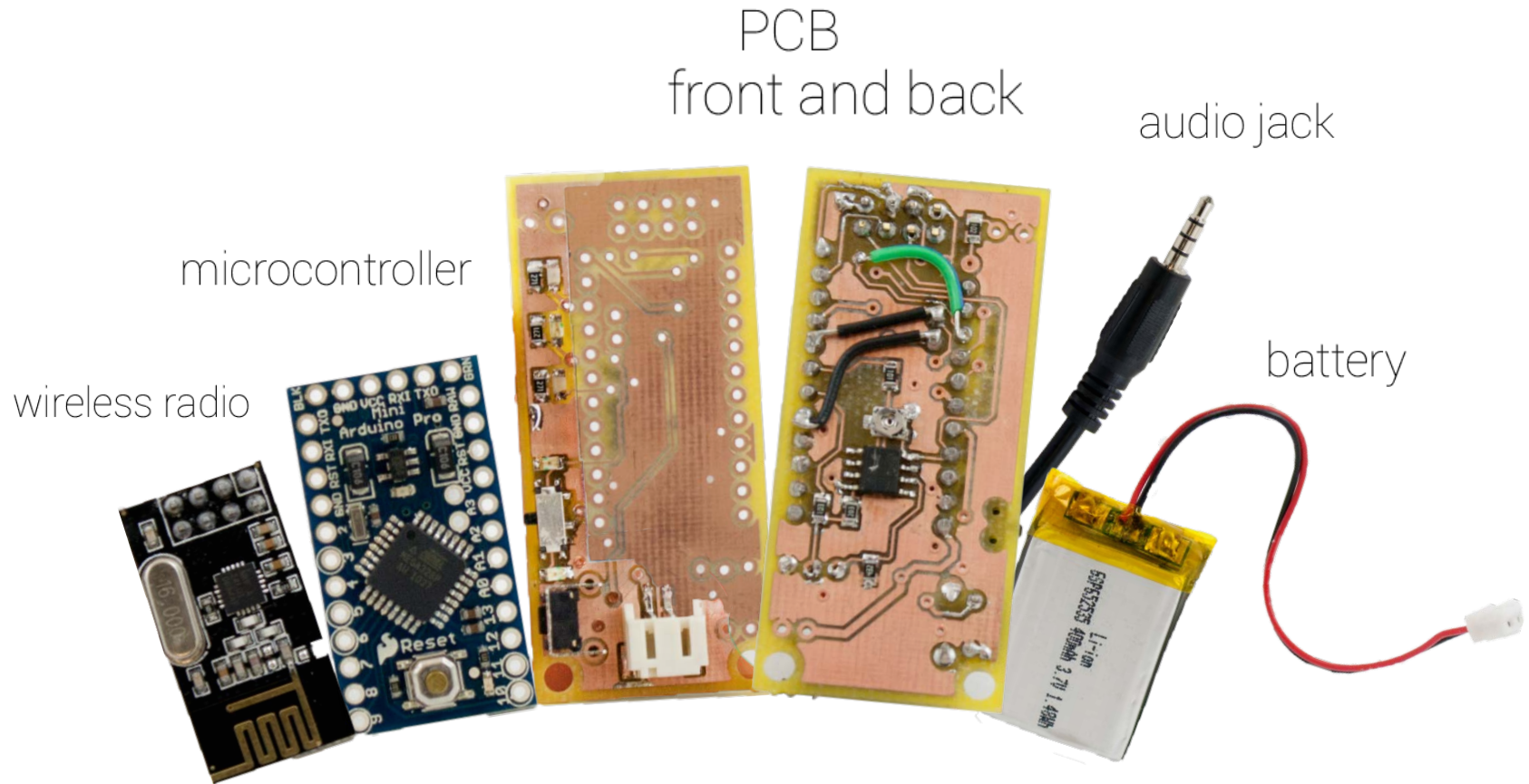
The Device








Internals



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- A hand is holding a small, rectangular, light-colored device. The device has three circular buttons arranged vertically. To the right of each button is a text label. The top button is labeled "High Danger", the middle button is labeled "Low Danger", and the bottom button is labeled "SOS Nearby". Below these buttons, the text "SOS ON" is printed in a larger, orange font. The device has a white cap at the top and a dark, textured band at the bottom.
- ☐ High Danger
 - ☐ Low Danger
 - ☐ SOS Nearby

SOS
ON



High Danger
Low Danger
SOS Nearby

SOS
ON



High Danger
Low Danger
SOS Nearby

SOS
ON



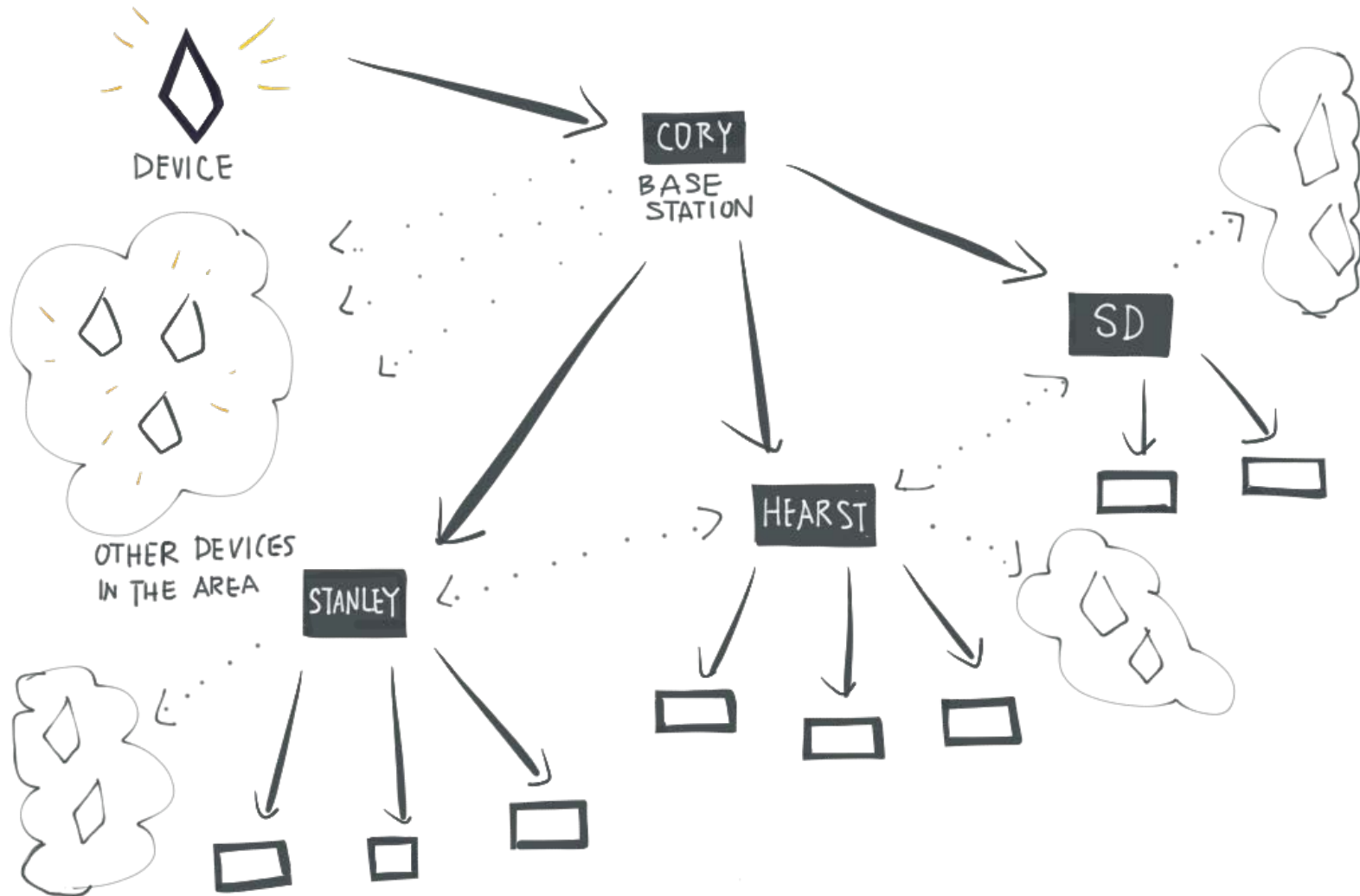
High Danger

Low Danger

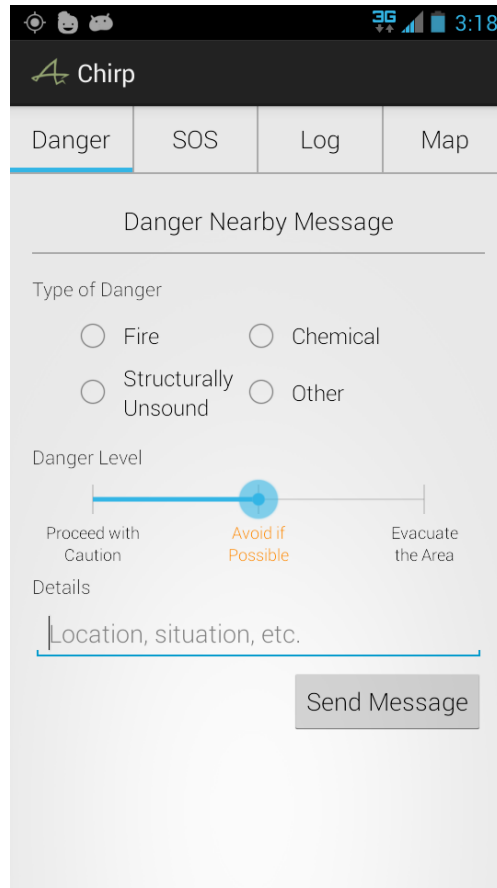
SOS Nearby

SOS
ON

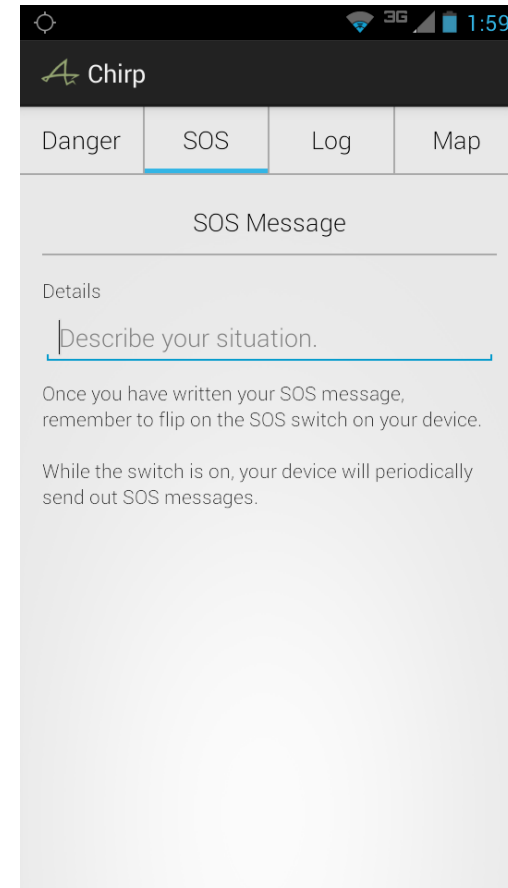
The Network



The Mobile App



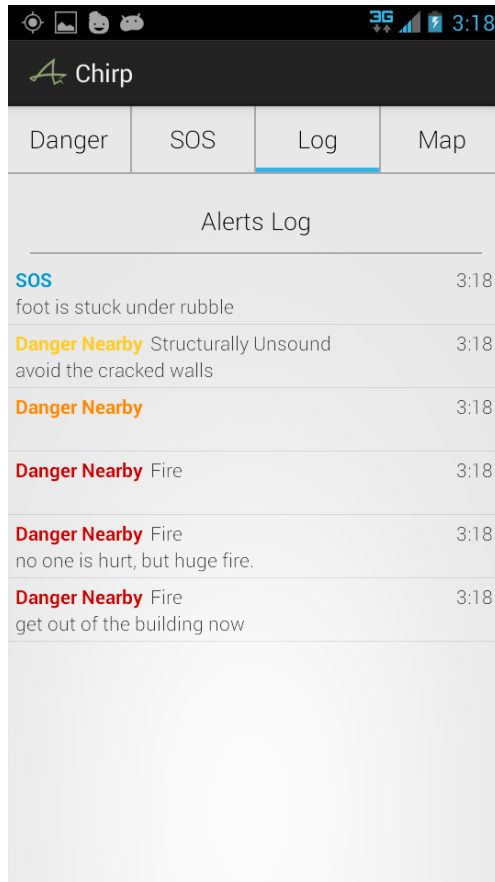
The screenshot shows the Chirp mobile app interface with the 'Danger' tab selected. The status bar at the top shows 3G connectivity and the time 3:18. The app header 'Chirp' is in a dark bar. Below the header are four tabs: 'Danger', 'SOS', 'Log', and 'Map'. The main content area is titled 'Danger Nearby Message'. It includes a 'Type of Danger' section with four radio button options: 'Fire', 'Chemical', 'Structurally Unsound', and 'Other'. Below this is a 'Danger Level' section with a horizontal slider. The slider has three labels: 'Proceed with Caution' on the left, 'Avoid if Possible' in the center (highlighted with a blue circle), and 'Evacuate the Area' on the right. At the bottom is a 'Details' section with a text input field containing the placeholder 'Location, situation, etc.' and a 'Send Message' button.



The screenshot shows the Chirp mobile app interface with the 'SOS' tab selected. The status bar at the top shows 3G connectivity and the time 1:59. The app header 'Chirp' is in a dark bar. Below the header are four tabs: 'Danger', 'SOS', 'Log', and 'Map'. The main content area is titled 'SOS Message'. It includes a 'Details' section with a text input field containing the placeholder 'Describe your situation.'. Below this is a paragraph of text: 'Once you have written your SOS message, remember to flip on the SOS switch on your device. While the switch is on, your device will periodically send out SOS messages.'

Users with smartphones can provide more details in the messages they send out.

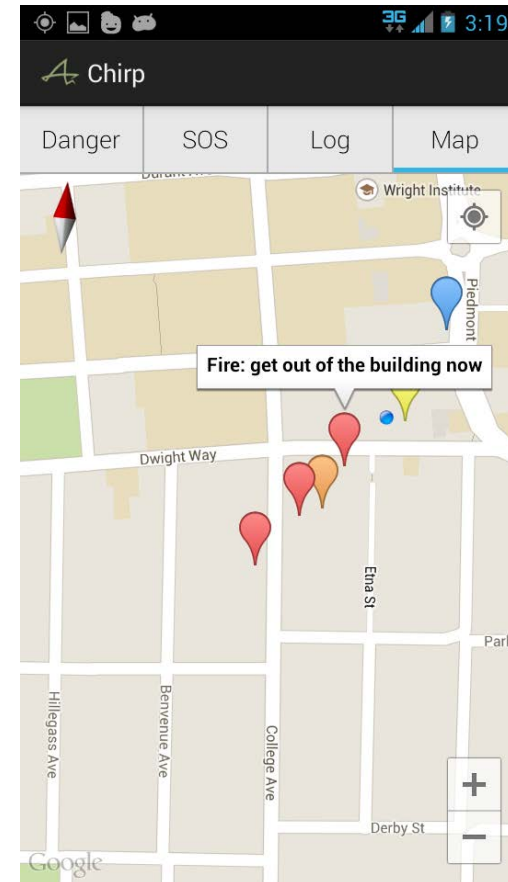
The Mobile App



Through the app, users can also view a list of messages they have received over

time.

 CHIRP



Finally, app users can view a map and see where each message came from.

Demo

Future Improvements

Large scale testing for our device.

Specialized devices for Authority users like Policemen, Firemen, and Emergency Responders.

iOS app development.

Explore power generation and lower power designs.

Thank you!