

Next Generation 911 (NG911)

Project Day
April 9th, 2022



Li Pan



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Renz Rivero

Commercial

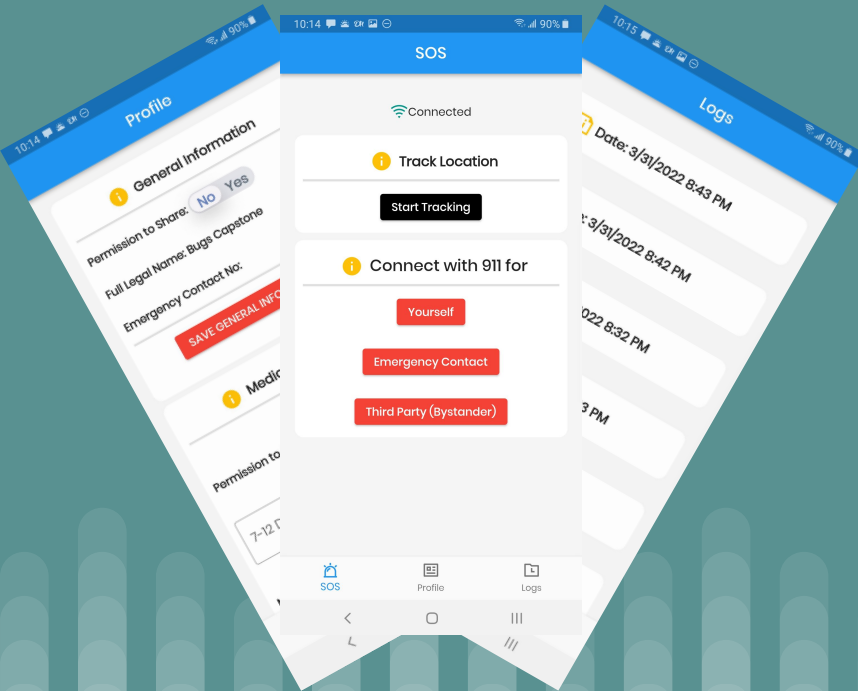
Purpose

A NG911 infrastructure is to be implemented across Canada around the year of 2024

Objective

Bring about an inspiration for the upcoming NG911 infrastructure in Canada by creating two applications

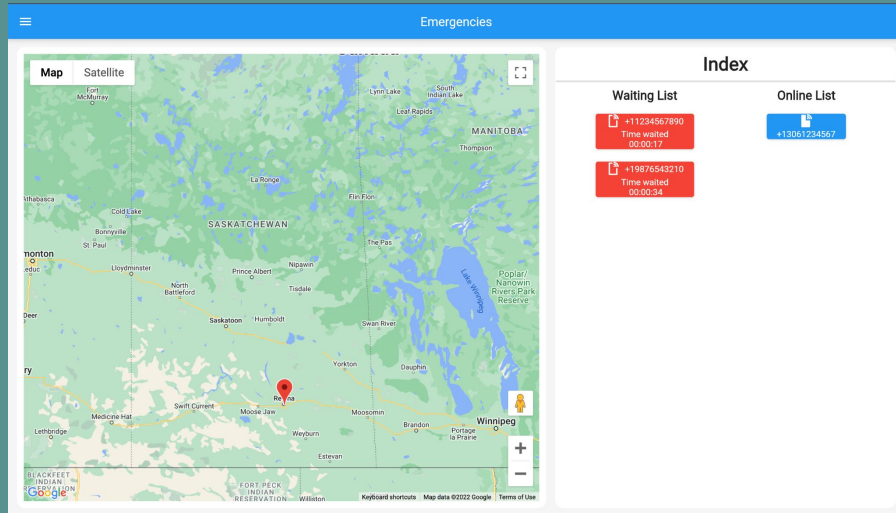
Mobile Application *for reporting emergencies*



- Mobile authentication
- Secure and privatized information storage
- Multimedia (text, audio, video) communication
- Tracking features

Dispatcher Dashboard Application

for responding to emergencies



- Multimedia (text, audio, video) communication
- If provided **AND** allowed by emergency users,
 - Track their location
 - Download their sensitive information

Methods



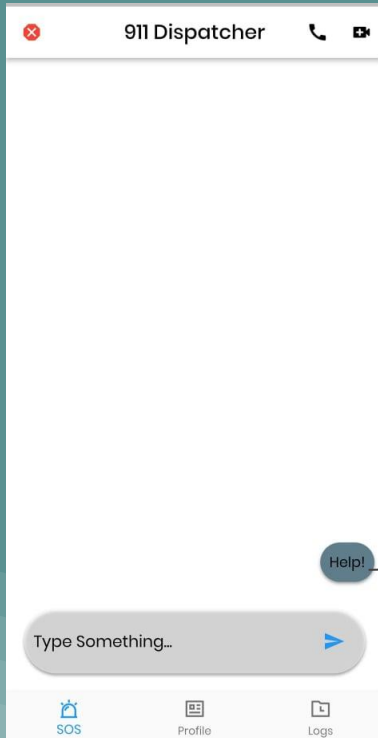
Security

- Communication
 - Encrypted
 - Advanced Encryption Standard (AES)
 - RSA
- Passwords
 - Hashed
 - SHA-256

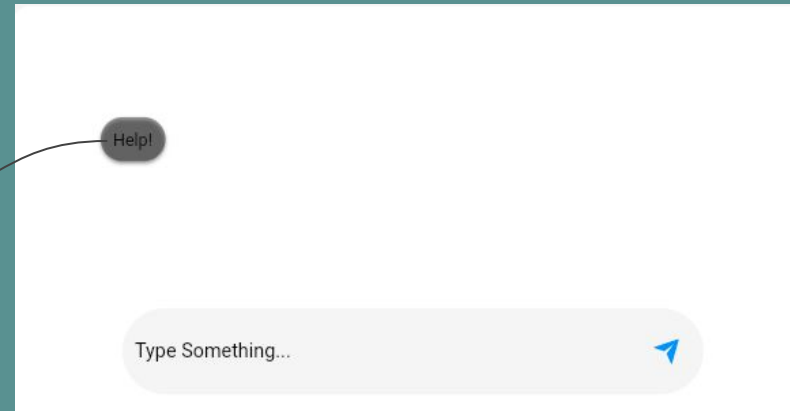
RSA

- Asymmetric
 - Works one way, difficult to reverse
 - Public key - shared - (**Lock**)
 - Private key - secret - (**Key**)

AES

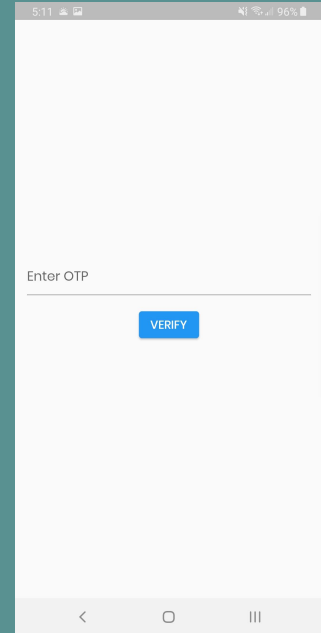
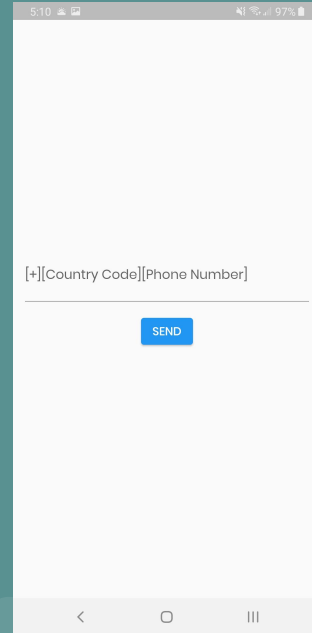


F9	AC	D0	EE
4D	1B	C3	0A
E8	61	BD	C9
34	F6	95	C2



OTP Authentication

- Authenticates users by sending SMS messages to their phones.
- User's identity allows the app to securely save the user's data locally.



Privacy

Throughout development, professionals in relevant fields have been consulted

Information exchanged only when consent is granted

UI/UX

Simple and privacy aware





10:14 90%

Profile

General Information

Permission to Share: ☒ No ☐ Yes

Full Legal Name: Bugs Capstone

Emergency Contact No:  

SAVE GENERAL INFORMATION

Medical Information



Personal


Permission to Share: ☒ No ☐ Yes


Health Card Number


7-12 Digits

0/12

Medical History:  

 SOS

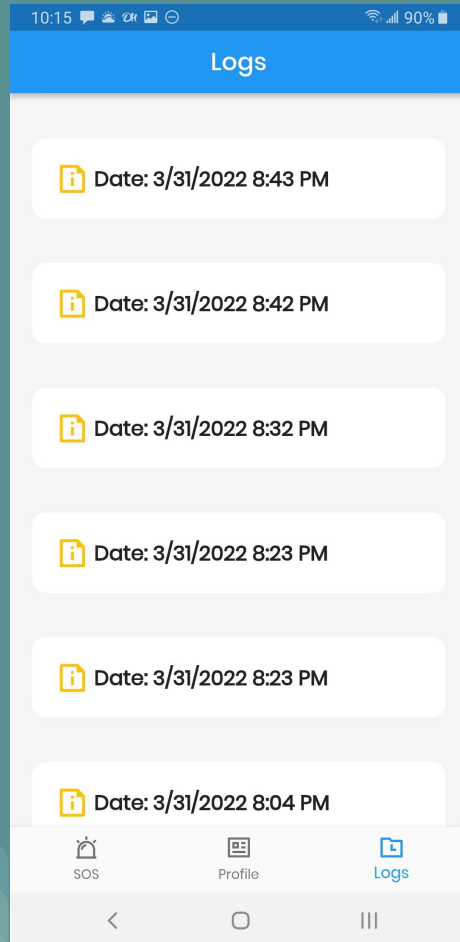
 Profile

 Logs

Mobile Profile Page

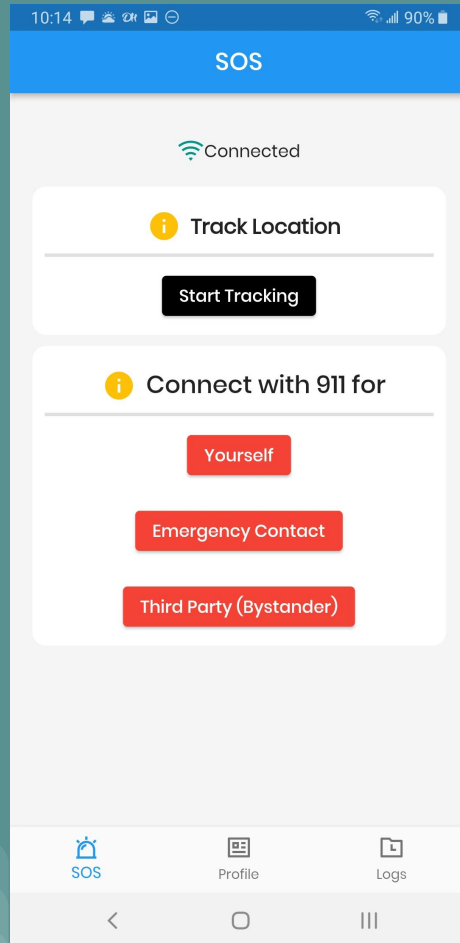
Know what your information is
being used for

Stored locally until shared if
permitted



Mobile Logs Page

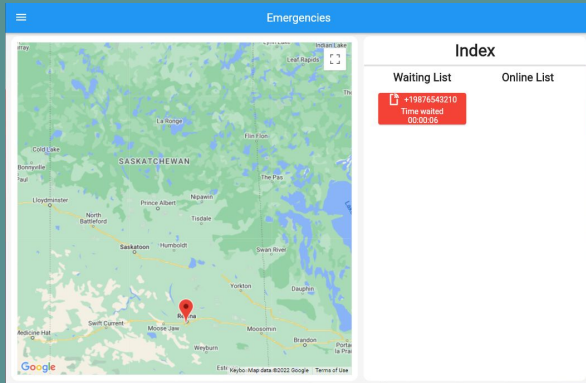
See exchanged
information anytime



Mobile Home Page

Easily connect with a
dispatcher

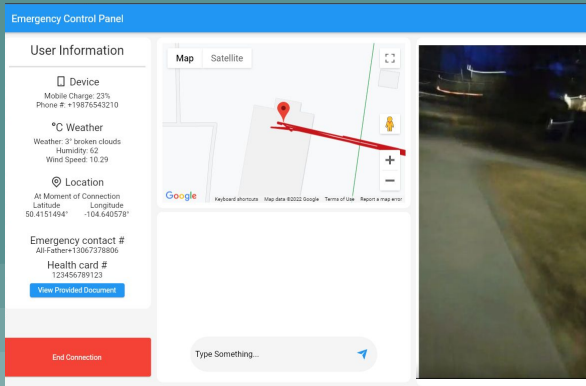
Home Screen



Dispatcher Dashboard

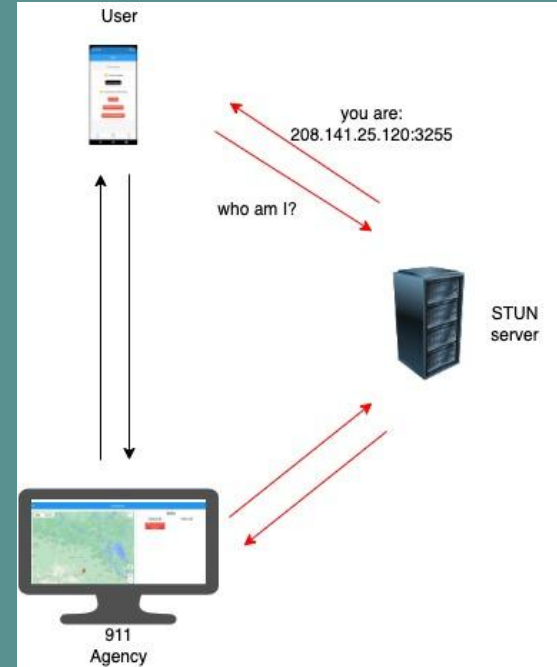
Organized information

Emergency Control Panel



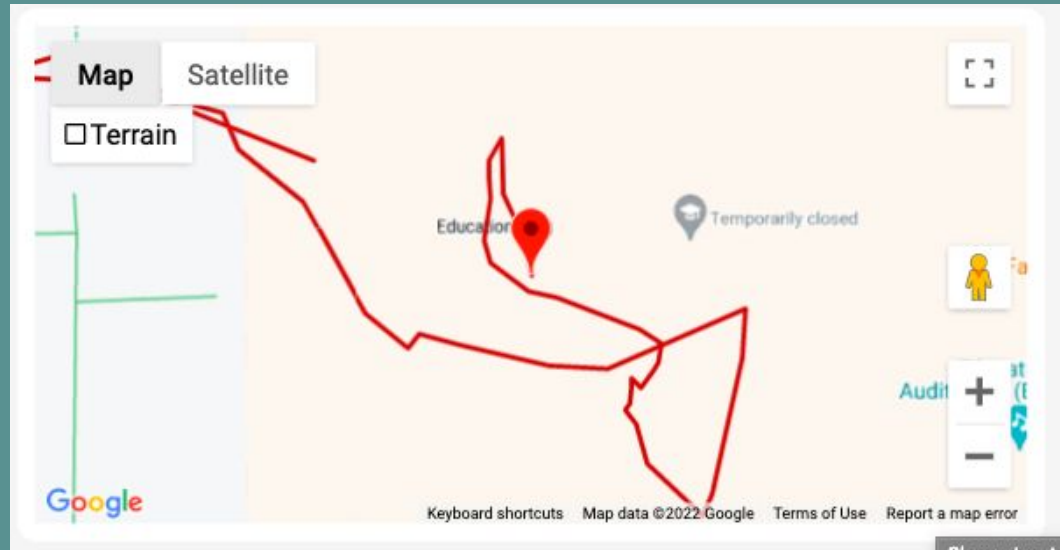
WebRTC

- Web Real-Time Communication is a technology that enables web application and mobile application (peer-to-peer) to capture stream audio/ video media without requiring an intermediary.
- STUN protocol



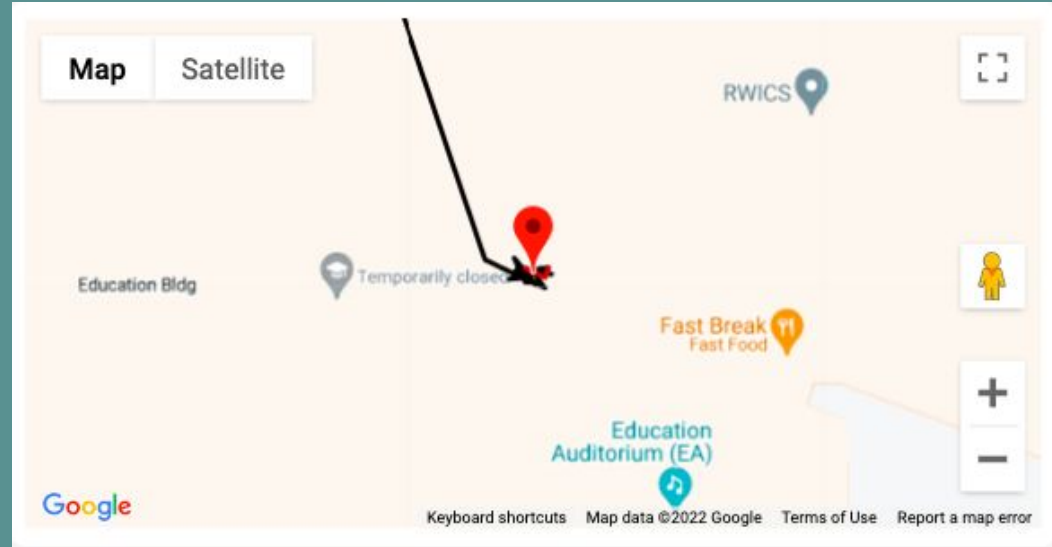
Real-time Location

- NG911 will be able to know your location from the call start.
- Red line to show the route, marker to show the current location.



Previous Location

- Feel in danger? Start your location tracking service.
- Black line to show the user's route before the call.
- 10 minutes maximum.
- Saved on the user's mobile locally.



Future Work

- Enhance Privacy and Security.
- Add functionality: pin locations of nearby emergency vehicles
- Scalability: can be branched out to other provinces in Canada

Acknowledgements

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Thank You!

