



Emergency And Rescue Service [OZEKI]

BSE15BFT

Mobile Application Development [MCT 2104C]

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EMERGENCY AND RESCUE SERVICES

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Introduction and Project Background

Crimes and accidents have reached an alarming levels in Mauritius, where by authorities' uncertain decision or lateness may make the difference between life and death. From 1st January to 21st May in 2017 number of road accidents occurs are 56 in which 59 people died and during the same interval in 2016 only 49 accidents happens in which 52 people died. According to 5plus, Station Officer Dercy states that people often tend to call the police during a fire outbreak because most people do not recall the fire and rescue services number. The police department have to check the details of the fire outbreak to be ensure of the predicament from which they will send available resources to settle down the outbreak. In Year 2016, two teenager residing in Triolet lost their life in an outbreak of fire as they were not rescued in time.

In this project, we are trying to make an effective emergency response system. Our mission is to save lives and reduce risks by sending rescue system as soon as possible.

Objectives

- I. Get user **current location**.
- II. Reducing deaths rate of road accidents. Example vehicle crash, injuries during accident.
- III. During fire outbreak, it reduces the damage by contacting authority in a short time duration.
- IV. It helps Mauritian to be well prepare to tackle emergencies.
- V. Improve the life quality of Mauritians.
- VI. It is a user friendly project.

Function

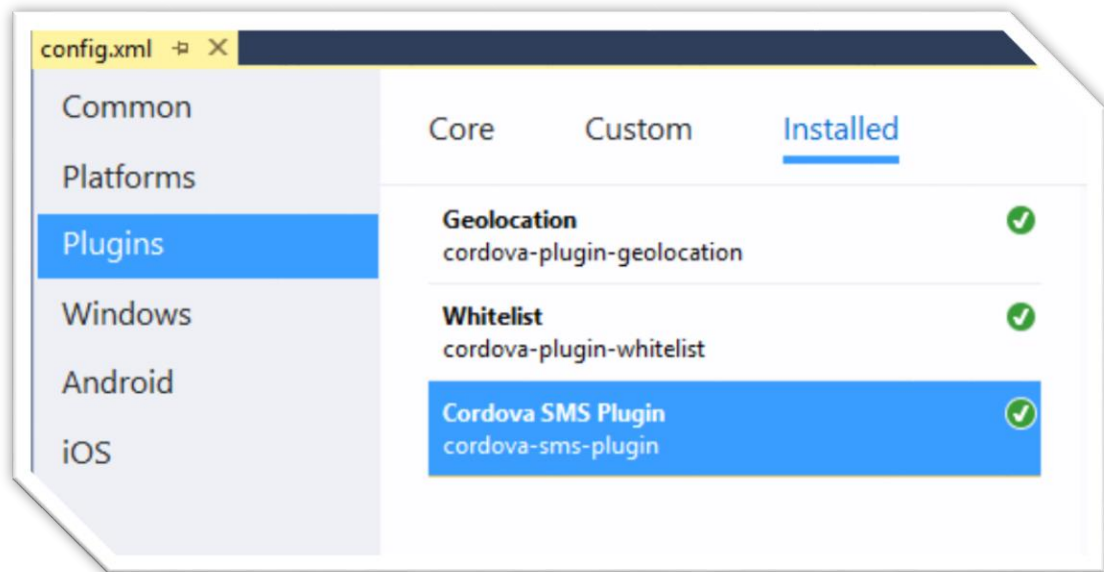
- I. User send a message.
- II. User receive a confirmation message.
- III. Server send an SOS message to the authority concern.
- IV. User don't need to send the message in a specific format as the Server will automatically detect keyword and contact authorities related to the keyword.
- V. Via geolocation, the server detects the user location coordinates and send it to authority
- VI. Authority gets the coordinates and can use google map to detect the specific location.
- VII. Authority also receives the user number in case they have queries.
- VIII. In case, no keyword is detected a message is send back to the user specifying the exact keyword that the server detects.
- IX. Server cannot detect more than one keywords and inform more than one authority.
- X. Android app built using Cordova. Why Android? Because in Mauritius Android have the greater market share than IOS and windows.

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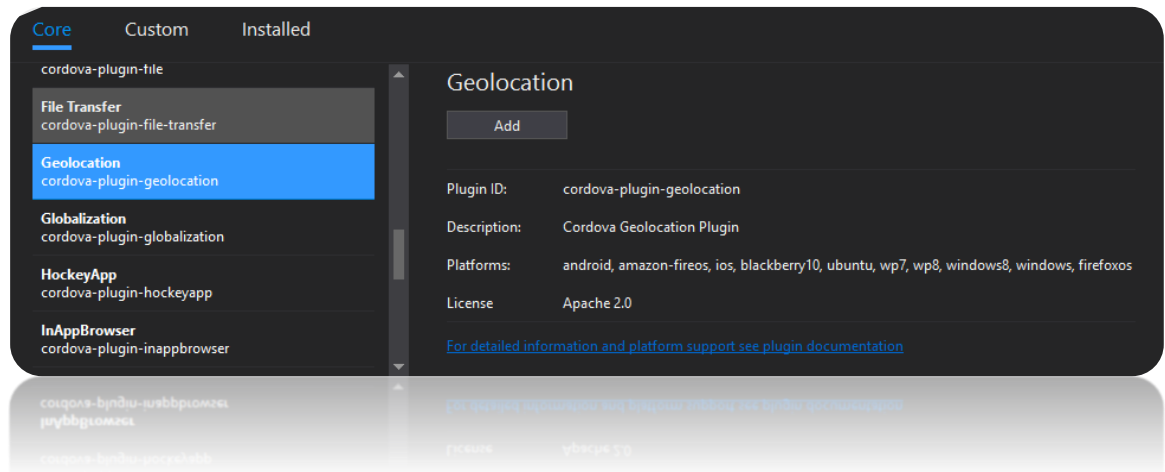
Software requirements

I. Visual Studio 2017 with Cordova (Recent updates)

⇒ Check your config.xml file. If you have all these plugins. Ignore the further 2 steps. If you don't then you have to install them.

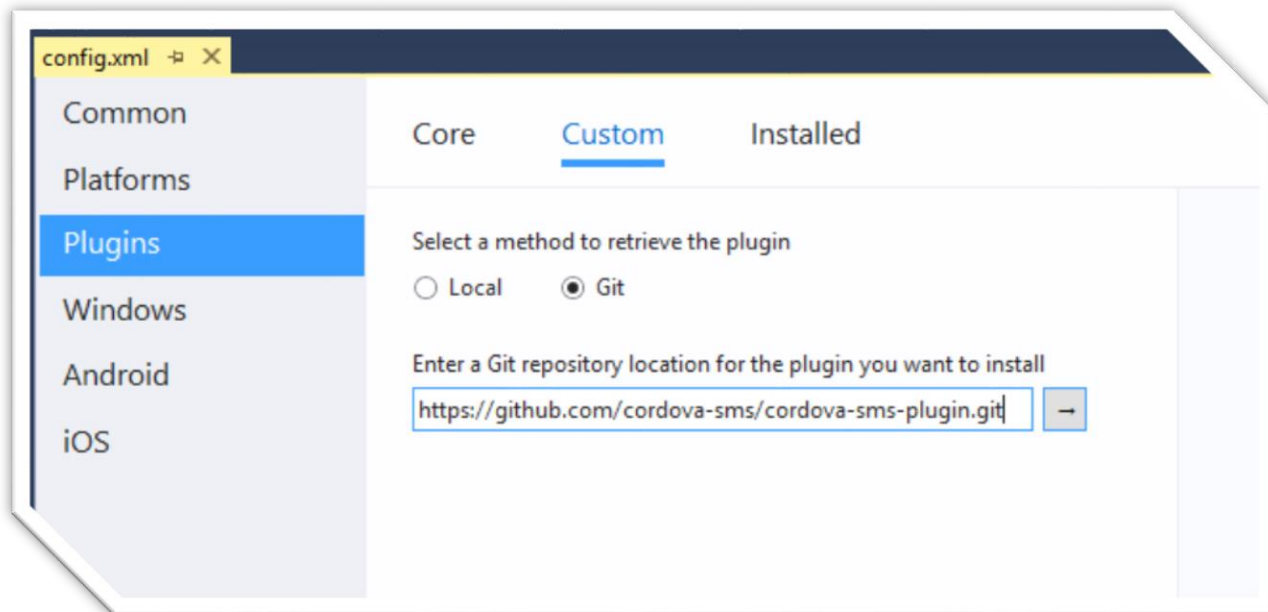


⇒ Install Geolocation

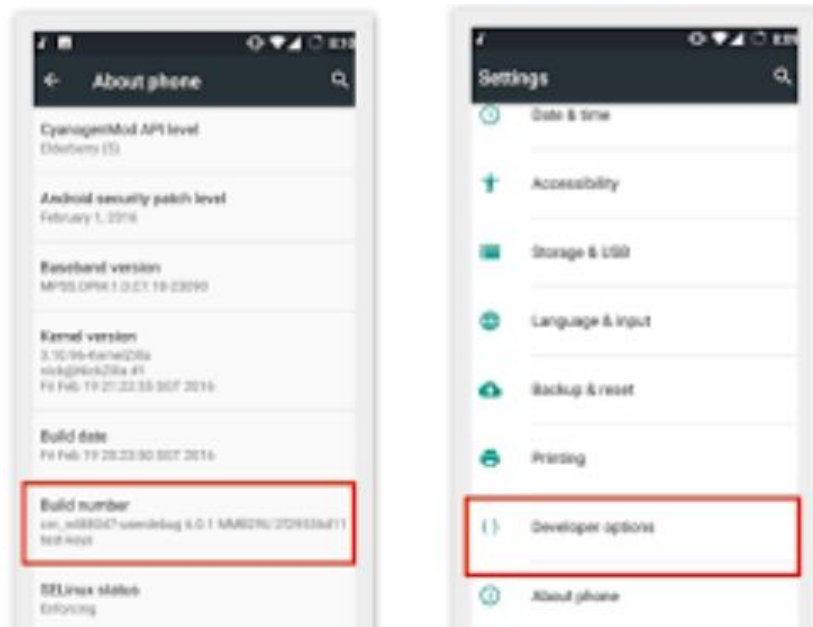


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⇒ Install SMS plugin

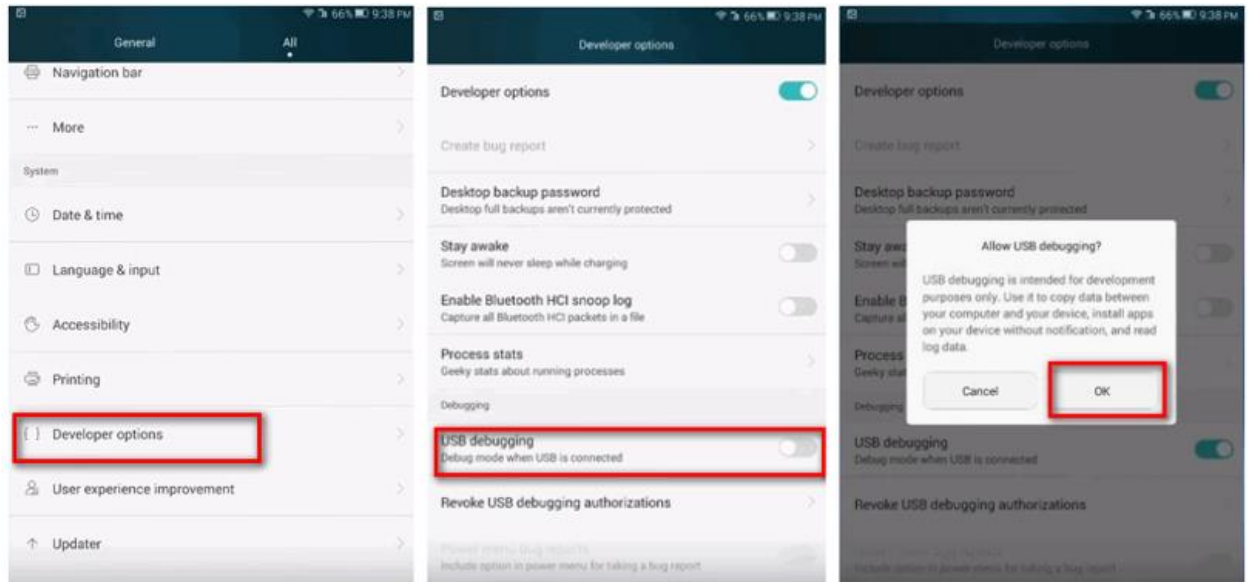


⇒ Now active developer mode in your mobile phone.

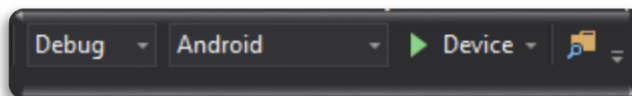


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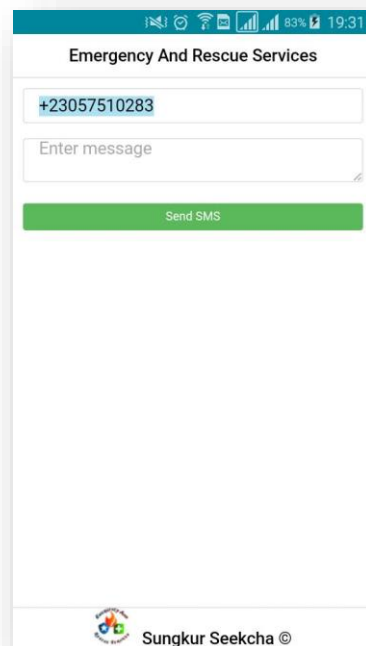
⇒ Connect your mobile phone with your laptop using a USB cable.



⇒ Build the application in your android phone.
Click on device.



⇒ It will appear like this on your mobile.



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II. Ozeki SMPP SMS Gateway

⇒ Download Ozeki SMPP SMS Gateway on your android mobile phone.



⇒ Press start.




⇒ Now to link it with Ozeki we have to configure it.

III. Ozeki Server 6

⇒ Install Ozeki

⇒ Driver > Install Drivers > SMPP Connection

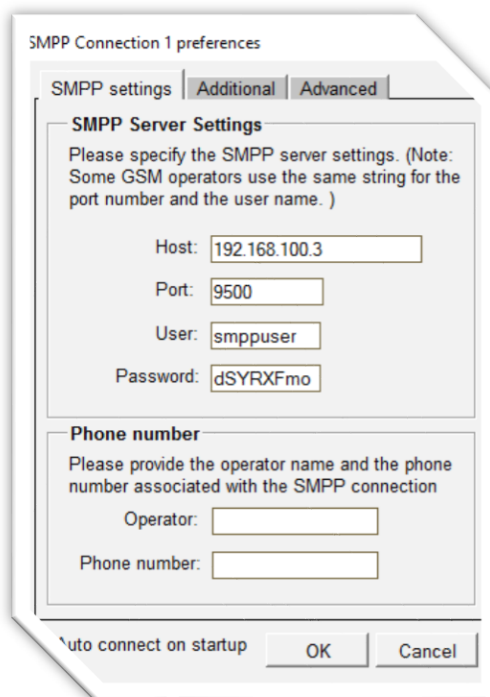
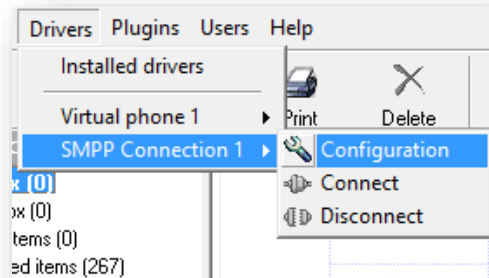


SMPP Connection [Install](#)

SMPP (Short Message Peer to Peer) protocol can be used to connect your PC directly to the SMSC of the GSM Service Provider. This way you can send and receive SMS messages over the Internet or a private IP network.

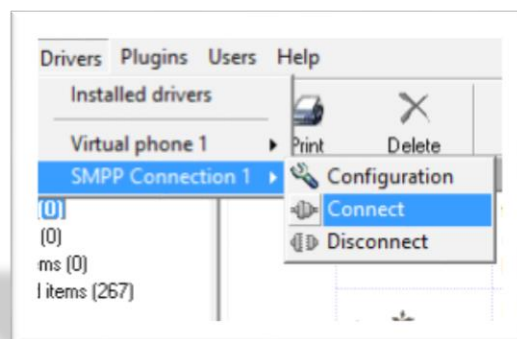
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⇒ Configure the SMPP



x

⇒ Connect the SMPP

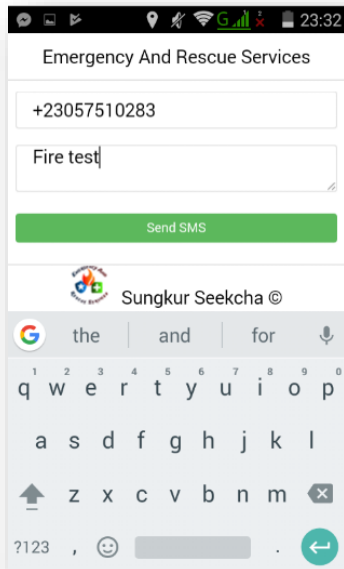


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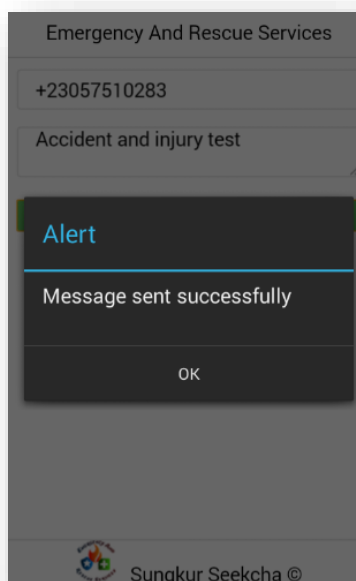
Testing

For testing purpose, the developer hardcodes other numbers instead of the real numbers of the authorities.

I. User send message

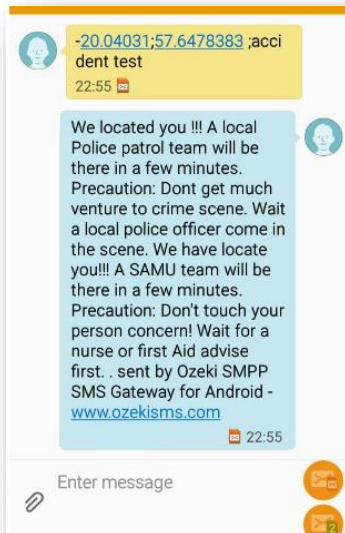


II. User message confirmation

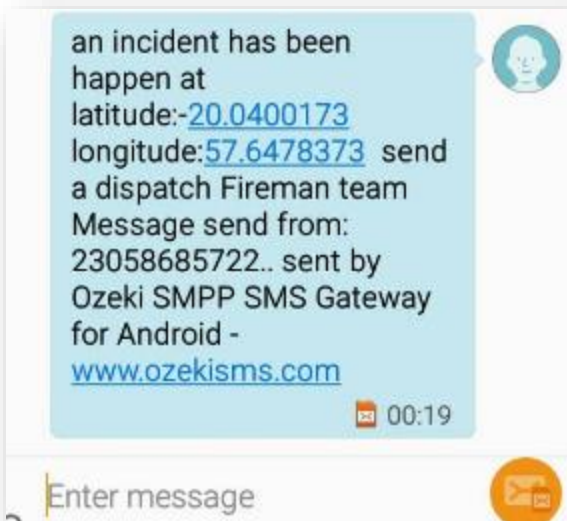


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III. User receives a message from the server

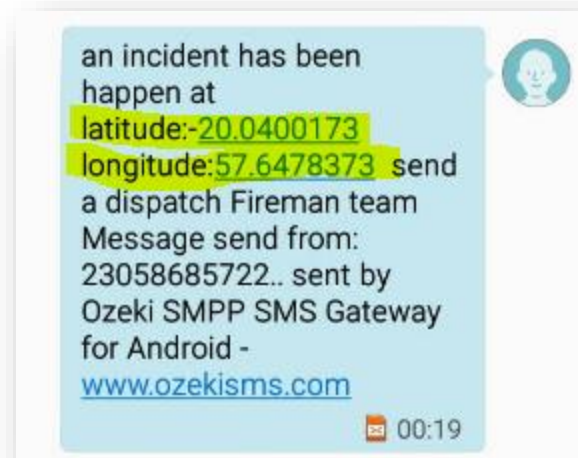


IV. Fireman authority get SOS message

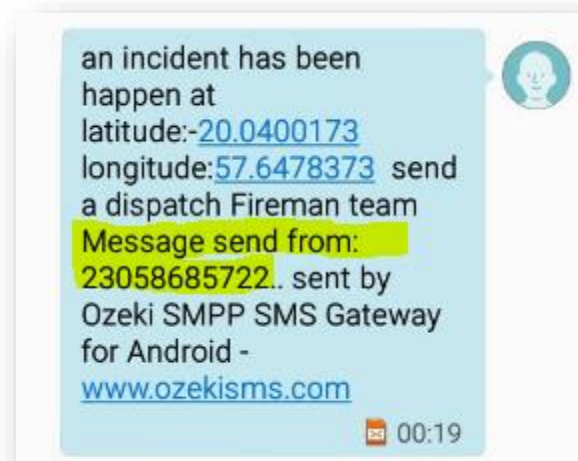


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V. Fireman authority receive your coordinates.



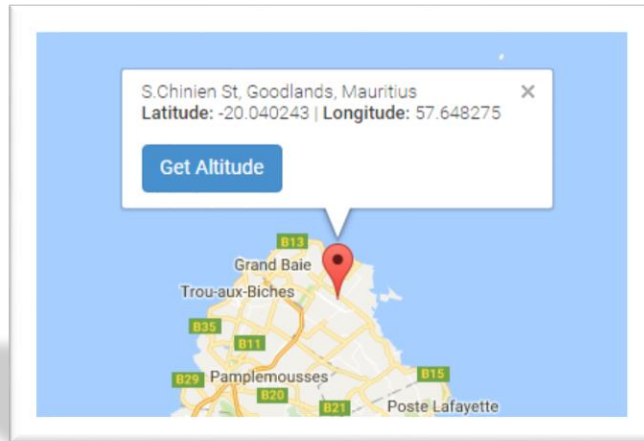
VI. Fireman authority receive sender number



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V. Testing if coordinates on google map

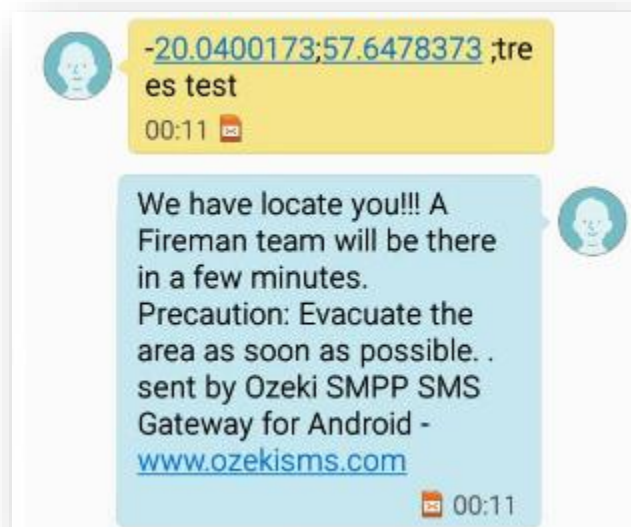
User Mobile location



VII. Testing for all three authority

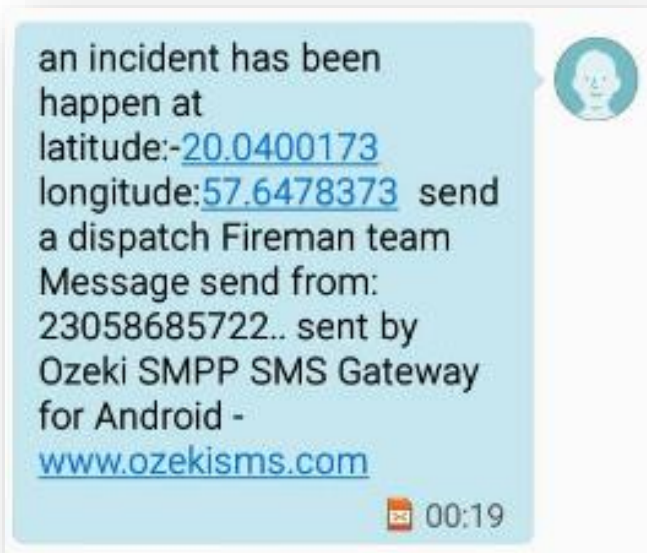
i. Fireman

a. User Send a message and receive reply



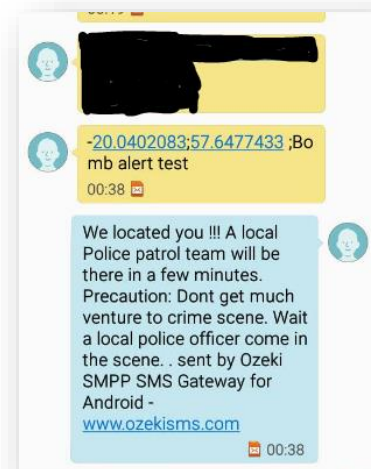
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- b. Fireman gets the SOS request with coordinates and sender number



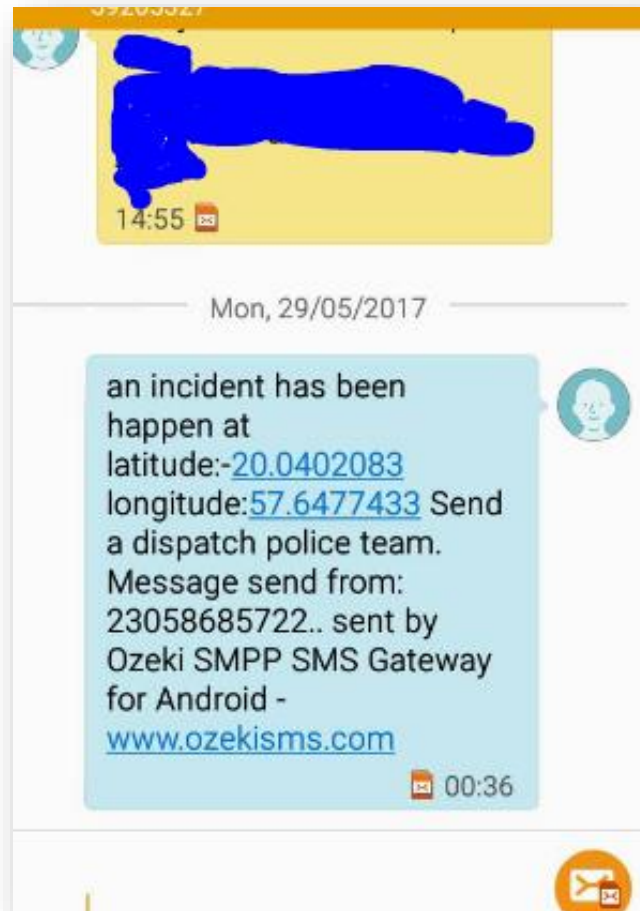
- ii. Police

- a. User send a message and receive reply.



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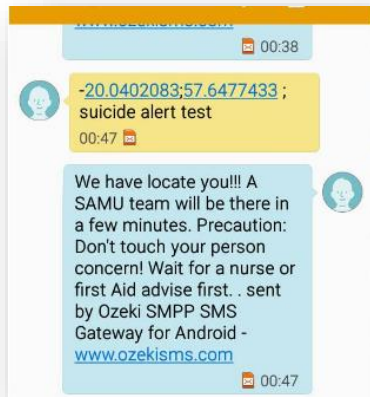
- b. Police gets the SOS request with coordinates and sender number.



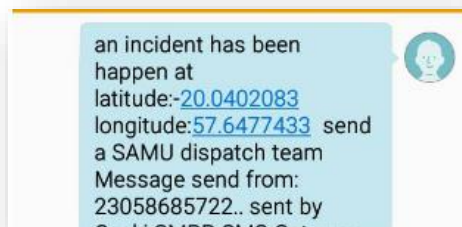
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iii. SAMU

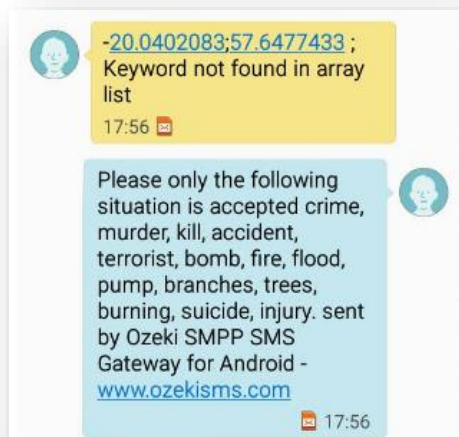
- a. User send a message and receive reply.



- b. SAMU gets the SOS request with coordinates and sender number.



iv. Wrong keyword



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CONCLUSION

Summary

With such a powerful device as an android mobile phone, human communication has been become an easy and rapid way of communication. For developers not fully enjoy the benefits of this wonder will be a waste of technology resource. This project can be one amongst many benefits provided by mobile phone. It can save life of innocent people or at least help them to tackle emergencies. For the interest of Mauritian future works should be performed to provide a more appropriate application for emergencies contact.

Future work

More interesting function can be included so that it can be a full- fledged fledge emergency and rescue services system.

1. Child Development Unit
2. Child Development & Family Welfare
3. Domestic Violence Unit
4. Suicide Prevention Unit
5. Anti-Drug and Smuggling Unit (ADSU)
6. Femmes Battues
7. SOS Femmes
8. Child Abuse

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References

S., L. (2016, August). *Frère et sœur périssent dans un incendie à Triolet / Leur mère : «Je n'ai plus aucune raison de vivre»*. Retrieved from 5plus Dimanche: <http://www.5plus.mu/faits-divers/frere-et-soeur-perissent-dans-un-incendie-triolet-leur-mere-je-nai-plus-aucune-raison>

Valerie K. (2017, May 22). Le Journal MBC 1.

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Appendix

JavaScript code (client side code)

API used

Getting coordinate of geolocation

```
function onSuccess(position) {  
    latitude = position.coords.latitude;  
    longitude = position.coords.longitude;  
  
}
```

Getting position every 3 second

```
// Device APIs are available  
function onDeviceReady() {  
    var options = {  
        maximumAge: 3600000,  
        timeout: 3000, //getting position every 3 seconds  
        enableHighAccuracy: true,  
    }  
    navigator.geolocation.watchPosition(onSuccess, onError, options);  
}
```

For error

```
// onError Callback receives a PositionError object  
function onError(error) {  
    alert('code: ' + error.code + '\n' +  
        'message: ' + error.message + '\n');  
}
```

SMS plugin

Get values from textbox and console.log send the message in a specific format

```
sendSms: function () {  
    var number = document.getElementById('numberTxt').value;;  
    var message = document.getElementById('messageTxt').value;  
    console.log("number=" + number + ", message= " + message);  
}
```

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Android configuration

```
//CONFIGURATION
var options = {
  replaceLineBreaks: false, // true to replace \n by a new line, false
  by default
  android: {
    intent: 'INTENT' // send SMS with the native android SMS
    messaging
    //intent: '' // send SMS without open any other app
  }
};
```

Sending latitude and longitude in form of a message

```
newmessage = latitude + ";" + longitude + " ;" + message ;
var success = function () { alert('Message sent successfully'); };
var error = function (e) { alert('Message Failed:' + e); };
sms.send(number, newmessage, options, success, error);
```

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Server side code

When Ozeki server receives a message it's in form of a link.

```
sender=$SENDER&receiver=$RECEIVER&msg=$MSG&recvtime=$RECEIVEDTIME&msgtype=$TYPE&gsmsms=$GSMSMS
```

Retrieve data from message in form of link

```
$sender = $_GET['sender'];  
$receivmsg = explode(";", strtolower($_GET['msg'])) ;// convert message to lowercase and extract in array at every space found
```

```
$wordtest = explode(" ", strtolower($receivmsg[2]));  
$latitude = $receivmsg[0];  
$longitude = $receivmsg[1];
```

Initialize array

```
$police = array("crime", "murder", "kill", "accident", "terrorist", "bomb");  
$fireman = array("fire", "flood", "pump", "branches", "trees");  
$samu = array("burning", "suicide", "injury", "injury");  
$found = false;
```

Filtering message

```
foreach ($police as $word) { // Array expression as $value  
    if($wordtest[$key] == $word) { //compare each word of msg to $word.
```

If found is true

If \$found = true in the first loop the server reads the following codes.

```
$sendmsg=$sendmsg. "We located you!!! A local Police patrol team  
will be there in a few minutes. Precaution: Don't get much venture to crime scene.  
Wait a local police officer come in the scene. ";  
$sendauthority= "an incident has happened at latitude:".  
$latitude." longitude:". $longitude. "Send a dispatch police team. Message send  
from: ". $sender. ".";  
$numauthority="23059265327";  
$found = true;
```

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Then it forwards all these variables [\$sendmsg, \$sendauthority, \$latitude, \$longitude, \$sender and \$numauthority] to the following link.

```
//replying to authority
$sendingautho =
'http://localhost:9333/ozeki?login=admin&password=abc123&action=sendMessage&m
essagetype=SMS:TEXT&recepient='+'. $numauthority.' &messageData='. $sendauthority
.'.';
$authorityRep = fopen ($sendingautho, 'r');

// //replying to user
$sending =
'http://localhost:9333/ozeki?login=admin&password=abc123&action=sendMessage&m
essagetype=SMS:TEXT&recepient='+'. $sender.' &messageData='. $sendmsg.'.';
$userRep= fopen($sending, 'r');

fclose($authorityRep);
fclose($userRep);
```

Note: If \$found = false then its goes to the next loop and repeat the above steps again. If words not found in any loop then this \$sendmsg is send to the user.

```
if ($found == false) {
    $sendmsg="Please only the following situation is accepted crime,
murder, kill, accident, terrorist, bomb, fire, flood, pump, branches, trees,
burning, suicide attempt, injuries, injury.";
}
```

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Ozeki Server

Server receives user message

admin:Inbox			
		Message	Time
Inbox (14)			
Outbox (0)			
Sent items (14)			
Deleted items (65)			
Server			
Users			
admin			
HTTP Client plugin 1			
	+23058685722	-20.0402433;57.648275 ;accident and fire test sent by Ozeki S	2017-05-28 22:58:14
	+23058685722	ozeki sms trial - www.ozeki.hu	2017-05-28 23:01:11
	+23058685722	-20.0402433;57.648275 ; fire test sent by Ozeki SMPP SMS Ga	2017-05-28 23:15:32
	+23058685722	-20.0400171;57.6478374 ;Pumping water test sent by Ozeki SM	2017-05-29 00:04:31
	+23058685722	-20.0400171;57.6478374 ;Pumping water test sent by Ozeki SM	2017-05-29 00:05:26
	+23058685722	ozeki message server trial - www.ozeki.hu	2017-05-29 00:08:52
	+23058685722	-20.0400173;57.6478373 ;trees test sent by Ozeki SMPP SMS	2017-05-29 00:10:10
	+23058685722	-20.0400173;57.6478373 ;trees test sent by Ozeki SMPP SMS	2017-05-29 00:11:36
	+23058685722	-20.0400173;57.6478373 ;trees test sent by Ozeki SMPP SMS	2017-05-29 00:19:13
	+23058685722	-20.0402083;57.6477433 ;Bomb alert test sent by Ozeki SMPP	2017-05-29 00:36:44
	+23058685722	-20.0402083;57.6477433 ;Bomb alert test sent by Ozeki SMPP	2017-05-29 00:38:12
	+23058685722	-20.0402083;57.6477433 ; suicide alert test sent by Ozeki SMP	2017-05-29 00:46:52
	+23058685722	-20.0402083;57.6477433 ; suicide alert test sent by Ozeki SMP	2017-05-29 00:47:28
	+23058685722	-20.0400173;57.6478373 ;trees test sent by Ozeki SMPP SMS	2017-05-29 17:32:31

Server sends message to user and authority

admin:Sent items			
		Message	Time
Inbox (14)			
Outbox (0)			
Sent items (7)			
Deleted items (72)			
Server			
Users			
admin			
HTTP Client plugin 1			
	23058685722	Please only the following situation is accepted crime, murder, kil	2017-05-29 00:08:53
	23058685722	We have locate you!!! A Fireman team will be there in a few mir	2017-05-29 00:11:37
	23057645303	an incident has been happen at latitude:-20.0400173 longitude:	2017-05-29 00:19:14
	23059265327	an incident has been happen at latitude:-20.0402083 longitude:	2017-05-29 00:36:45
	23058685722	We located you !!! A local Police patrol team will be there in a fe	2017-05-29 00:38:13
	23058685722	We have locate you!!! A SAMU team will be there in a few minu	2017-05-29 00:46:53
	23059359657	an incident has been happen at latitude:-20.0402083 longitude:	2017-05-29 00:47:29