**INTRODUCTION**

- Safety issues in the transportation system are the major concerns.
- V2V/V2I are emerging as an efficient solution for achieving road safety.
- Blind Spots, Intersections, and Ghat Sections are the major accident-prone areas where there is no clear visibility of moving vehicles.
- Internet connectivity is the main concern in areas like ghats.

**APPLICATION FEATURES**

1. Real-time visibility of neighbouring vehicles in the collision domain.
2. Incident Reporting within a certain radius.
3. App has two modes, Cloud and P2P.
4. Application automatically switches from cloud mode to P2P mode when there is no Internet.

**CLOUD VS ADHOC MODE**

<table>
<thead>
<tr>
<th>P2P Mode</th>
<th>Cloud Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range is &lt;80m</td>
<td>No bound on range</td>
</tr>
<tr>
<td>More reliable</td>
<td>More time to discover presence of neighbour</td>
</tr>
<tr>
<td>More time to share data i.e. cloud latency</td>
<td>More time to share data i.e. cloud latency</td>
</tr>
</tbody>
</table>

**APPLICATION SCREENS**

- **Login Screen**: New users can register using Google or Email Sign-In methods.
- **Map Activity**: Green markers show the real-time location of neighboring vehicles.
- **Peer Discovery**: Activity to show connected peers and a button to display location on map.
- **Message Broadcast using P2P**: In case of no Internet, location is sent to peers and displayed on map.
- **Navigation Drawer**: Navigation drawer to switch among different activities of application.
- **Cloud Messaging**: Share message within certain radius i.e. Incident Reporting.

**TECHNOLOGIES USED**

- DOTN (Delay Tolerant Networking)
- GPS
- SQL
- GeoFire

**CONCLUSION**

- We developed a smartphone-based application that can make use of P2P and cloud technology to detect vehicles in the collision domain.
- Future work comprises of audible beeps/alerts if any vehicle comes into danger zone.
- Developing efficient RF (eg. Bluetooth) scanning methods for estimating traffic congestion and speed.

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