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Safe Ride Mode

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ABSTRACT

In today's busy world people tend to forget about their surroundings. The increasing usage of smartphones during driving led to a growing death rate. In fact, people tend to face accidents in two-wheelers more often, mostly due to the usage of smartphones. The proposed work suggests a method to reduce the tendency of picking up phone calls while driving by restricting call notifications. While restricting the calls, a notification of important calls is provided through the smart wearables, thus providing the user a hassle-free driving. The pit stops provided for dealing with the notified calls are also displayed through wearables to attend to the matters of urgencies. The apparent restriction of calls during driving can reduce accidents to a greater extent.

Keywords :— Call answering system, Geolocation, Live traffic analysis, Motion lock, Pitstops, Prioritization, Smart wearables.

I. INTRODUCTION

The smartphones are an unavoidable part of our life, which has led to many unprecedented errors. The increasing accidents for two-wheelers have been due to the unavoidable interactions of smartphones [3]. The incoming calls usually provide the major distracting factor in mobile phones during driving. Either the user has to follow stringent measures to avoid these or the smartphones must be developed to handle with these situations effortlessly.

A novel idea has been introduced to help with this concern. Through this project, we present an android application that helps to provide a safer riding mode for the users. The application deals with the controlling of calls and messages received by the users during driving [5]. This is achieved by blocking the notifications from being displayed to the users while driving. But if the calls turn out to be urgent, then these are notified in terms of pitstops. The calls get identified as urgent ones if it satisfies certain conditions. Thereby preventing the user from having to attend unnecessary calls.

The pitstops serve as the point on routes wherein the users are allowed to stop in to attend urgent calls. These pitstops are determined by using live traffic analysis so that the user has to sacrifice a very little time in reaching their destinations. The urgent calls are first accessed by the app which in turn sets the pitstops for the user and provides notifications to the users either through smart bands or directly through mobile phones (through special vibration patterns when pitstops are nearby). The user can decide over the pitstops set in the map thereby preventing additional wastage of time. The major distractions honed by these calls can thus be averted to a greater limit by this application.

II. LITERATURE SURVEY

The world's renown smartphone company, Samsung had recently announced the launch of the Samsung Galaxy J3, featuring the S bike mode [1]. Once activated at the beginning of a ride, any caller trying to reach the Samsung Galaxy J3 user will be notified through an automated answering machine that the user is riding and cannot take calls so that the ride remains uninterrupted. The calls were considered urgent only when the caller pressed '1' at the prompt of the answering machine.

Galaxy J3 has inbuilt NFC hardware and the device ships with an S bike mode NFC Tag. This tag can be affixed at a convenient place (e.g., helmet or a fuel tank) and the user can gently tap the device on this tag to activate/deactivate the S bike mode. So there are two ways to activate S Bike Mode: you can use the S Bike Mode NFC tag and tap a compatible device on it, you can activate it manually through the quick setting toggle in the notification shade, or long press the power button and activate the feature from there. The user also had the option to use the quick panel to activate/deactivate this feature.

All callers will hear a pre-recorded message that informs callers that the Galaxy J3 user is riding a two-wheeler and is unable to take the call. The S bike mode user does not get any notification that there was an incoming call (to avoid distraction). The application also came with an extra feature of Motion Lock, where the S bike mode user was required to bring his bike to a halt to be able to answer the call. The phone will not allow the incoming call to get answered owing to the motion lock. This safety feature is designed to encourage responsible riding.

The S bike mode also supports an intuitive user interface where users can see a log of call notifications while the mode is enabled. It also has a Smart Re-ply feature where selected contacts will receive an auto-SMS with an estimate of when the user is likely to be available for a call based on a trip destination entered by the user. The application faced a rather mixed response due to the onset of many issues. Earlier Galaxy J3 users only had complete access to the feature. On subsequent versions, it came to be applicable for smartphones with a built-in NFC device in it.

But since the majority of the smartphone users did not possess this NFC within them, hence leading to a cold response towards the app usage. Even though the application blocks the call, if the caller pressed ‘ 1 ‘ at the prompt of the answering machine then the calls were treated to be urgent and passed on to the mobile. These seemed to possibly contradict the very usage of the application as there continued to remain a prop-ability wherein the caller might just click on ‘1' for matters of least urgency, then the user would have to be at a halt for every now and then. These problems turned out to be the basis for our proposed system.

III. PROPOSED SYSTEM

The application to be developed here focuses mainly on the concept that a call should be registered urgent only when it's occurring frequently. The SR mode emphasizes the need for the user to be notified only at the times of utmost urgency at the same time restrict the user to take up calls while driving. The application is meant to be usable for every smartphone users, as no particular devices are required for the working of this application. The current location, as well as the destination, was required so that the proper working of the application is ensured. This was made possible by the GPS H/W embedded in the mobiles which further facilitated the tracking of users. The application deals with urgent calls by assigning random markers on the map, called Pitstops. These fall on the route, produced when the destination and current location were set. The smartphone and the wearables could both work alike providing the information regarding the Pitstops.

A. WORKING

The basic working of this application is on the basis of the number of calls that occurred during a particular period of time interval. The application requires the services of google map activities, motion sensors, and a message notification provider for the smart wearables.

Figure 1: Mode enabling button

First, the user has to register their identity, which will be stored to the database enabling the application to track the call history of the user. After the user is registered then the app is enabled by clicking on the app logo provided. In fig 1, we see a logo that kick-starts the services (Location service, Call detection service etc.) in the application that continues to work on the background. Once the application is enabled, the phone turns to be in a non-reactive state such that other activities of the phone are restricted and the user is only provided with the application interface. If the user wants to use other apps they have to disable the application. The GPS system plays a vital role in determining the exact location of the user [2] in real time. Devices might need to explicitly allow location and other accesses of the application for the smooth working. The ever updating versions of android and their newly induced rules seems to hinder the applications effective usage.

When the application is enabled all the calls are monitored. Consider an example where the user logs in to the app and this enables it, the user is notified to enter the traveling destination. After the destination is set then a route is added, then the user could lock off the screen and start to ride. In fig 2, we see that a route gets set on the screen after entering the

destination. As he starts to travels the calls coming into the phone are monitored and the callee is notified using an answering machine. If the same caller calls again twice, then the call is prioritized into the urgent category and the user is notified via the smart wearable or phone by the process of vibration and pop up messages (smart wearables)[4]. As the call is categorized into the urgent the app takes the live traffic feed and the distance to destination and calculate it to find the optimal point for taking the call. This optimal point is categorized as pitstops.

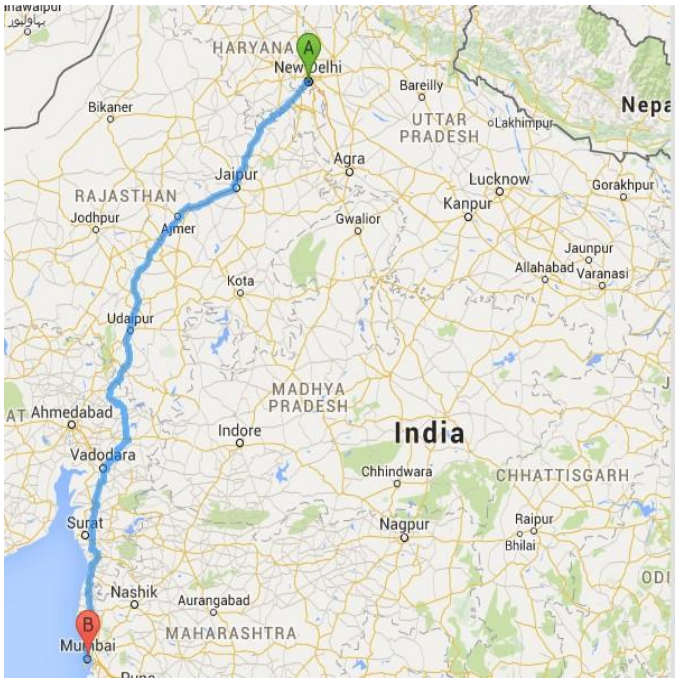
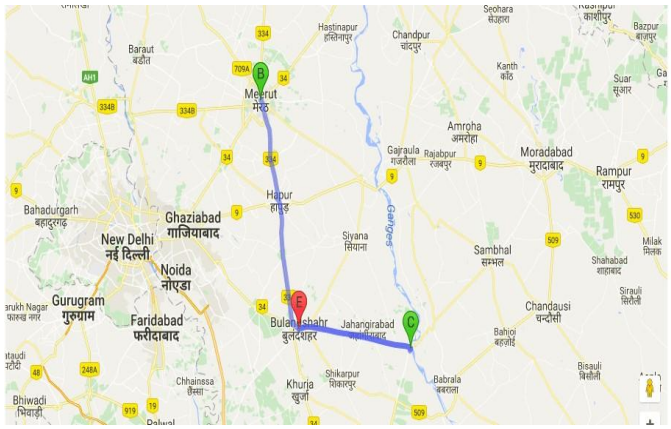


Figure 2: Destination route



In the fig 3 a pitstop is set onto the previously set route.

Figure 3: Pitstop E is added between point B and C

At the pitstop, the rider could stop his vehicle and take the call or call back the callee by disabling the app. The pitstop is acknowledged to the user by the means of a message and a customized vibration to the user. The smart watches needs to be minimally upgraded so as to include the features expected from it. Based on the studies in [4], smart wearables could also be directly equipped with the calling ability, thus restriction of unwanted notifications should be taken care of. The app normally stops its services when it reaches the desired destination, unless another destination is entered by the user leading to the app to start functioning again. The app can be disabled by the user by tapping twice on the logo provided at the screen. The rider can't take the call or call back the callee while driving, as a motion detector is enabled in the application. As long as the app is turned on, the user or the rider is provided with a pop-up notification of pitstops alone, hence the user will have to stop driving in order to take the calls.

IV. CONCLUSIONS

The Safe Ride mode application was meant on providing better safety and driving experience by restricting the calls during driving, without ever having to sacrifice on the calls of urgency by using Pitstop information to inform the user. At the end of the day, the user has the utmost control over the distractive factors arising from the smartphones during driving thus reducing the accidents due to phone calls to a greater extent. The application is useful on all the android devices above Jelly Bean Android OS and is compatible with smart wearables that can display the directions and distance information effectively.

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