

Transcend Viewer

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Abstract— Mobile phones and tablets have substituted newspapers, books, magazines, music players, play stations, etc. which play an integral part in our day to day lives by offering numerous applications with extraordinary features offering similar in some cases better functionalities. Android is a software environment built for mobile devices. It is the most popular mobile platform because of ease in operation and range of applications. The existing Android mobiles perform zooming using button controls, pinch and zoom and tap. Our aim is to substitute this existing features with a more comfortable and user- friendly option i.e. to introduce a whole new approach by explicitly zooming according to eye-sight. This feature shall take the input as user's eyesight and zoomed pages according to that eyesight which not only eradicates the necessity of manual zooming but it can also enable the user to use his phone without the use of spectacles. In case the user wants to choose his own comfortable reading level this feature will allow him to do so.

Keywords— Android, Pinch and Zoom, Button controls, eye-sight.

I. INTRODUCTION

Mobile phones are a part and parcel of our life. Phones serve different purposes for different people. Today's mobile market offers different phones with different ranges of application, different costs, different physical features and many more. Platforms available on mobile phones are Symbian, BlackBerry, iPhone, Windows and of course, the increasingly popular Android platform. The reason behind this is using an android phone is easy and it has something for everyone.

Android is a software platform that has played a significant role in revolutionizing the global cell phone market. Android is primarily a Google effort, in collaboration with the Open Handset Alliance. The OHA is an alliance of nearly 50 organizations which have come together in bringing a "better" and more "open" mobile phone to the market ^[1]. As of today android is the most affordable and user friendly platform used by people of different ages for different purposes. Way back, mobile phones were mainly used for primary interests such as for voice communications, an address book, and increasingly, texting. The scenario today is completely different.

People use phone for reading, browsing, gaming, camera, music and video player and many more.

The phones which are capable of serving these features are called smart phones. Android developers face many challenges while incorporating these features into the phones. One of the big functionality gaps on the phones is the experience the user gets compared to that of a desktop because of screen size. For this zoom features are introduced in various applications where ever necessary. We use this zoom feature in browsing, reading, photography, maps and etc.

II. EXISTING APPLICATIONS

All of us are familiar with the existing approaches used for zoom in android. Some of the applications use pinch and zoom wherein the user uses his fingers and the pinch gesture is detected .The scaling factor is the distance between the pointers, i.e., his fingers determines the amount of zoom in or zoom out required. Another approach is tap action in which the user taps on the screen and the number of times he taps the screen gets zoomed in and out accordingly. The user here will not be able to zoom according to his choice as the scaling factors will be decided by the internal functionality. Simpler approach for zoom generally used in maps is zoom button controls. These applications offer zoom in and out buttons. The application is programmed for zooming the page on button click to a certain level.

III. PROPOSED WORK

Wouldn't it be easier if your phone adjusts the view to such comfort levels where the only thing you have to worry about is to find the right page to read or browse? The sole purpose of this paper is to achieve this objective. Nowadays, phones are not used just for communication; they offer numerous services both academic and recreational. Users tend to use their phones more often for reading on the go .This can be carried out effectively only when the user is able to view the pages clearly. To gain clarity user tends to zoom and adjusts pages to his comfort level by pinching in and out. This paper suggests an alternate approach for the above procedure.

Android is the most preferred platform due to its user-friendliness, affordability and vast range of applications. We intent to take the user-friendliness of this interface to a next level by introducing a new feature which will

replace the feature of pinch and zoom and other existing ones. Android offers number of methods and classes and even allows us to create our own methods which will help us in developing this application. This will help even a layman not familiar with using a touch phone to operate properly .In the existing android applications, most of them do not offer proper zoom controls and many a time users face problems in adjusting zoom level manually.

IV. IMPLEMENTATION

The main purpose is to achieve this new feature in applications wherein there is a need to adjust zoom. This feature takes user eye sight as an input and provides a page with adjusted zoom level as an output. To achieve this feature of our application, we will need to access zoom functionality of an android view. There are different views available in android and there are different zoom functions for each view.

Then we implemented explicit zooming taking eyesight as input for testing purpose. The methods `setScaleX()`, `setScaleY()` were used to perform zooming. Scale methods are called by passing float values as parameters with minimum as 0.5f and 1.0f as normal scale. Here we have made an assumption for developing the application, i.e. for increment of 0.25 in eyesight the scale value is increased by 0.6.

To show how this will be carried out in an actual application we have developed a sample application.

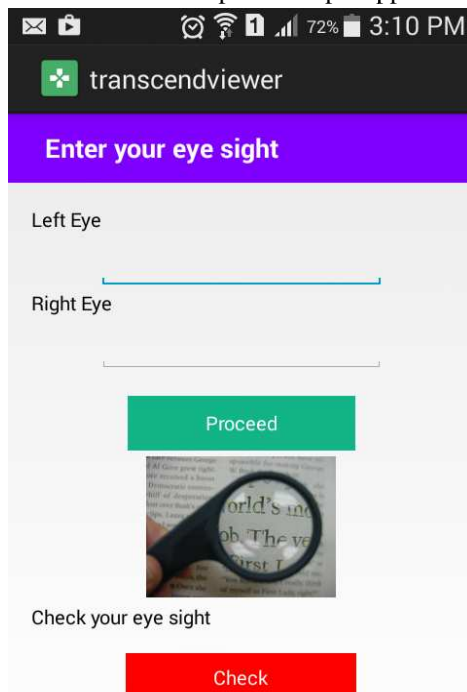


Fig. 1: Home Screen

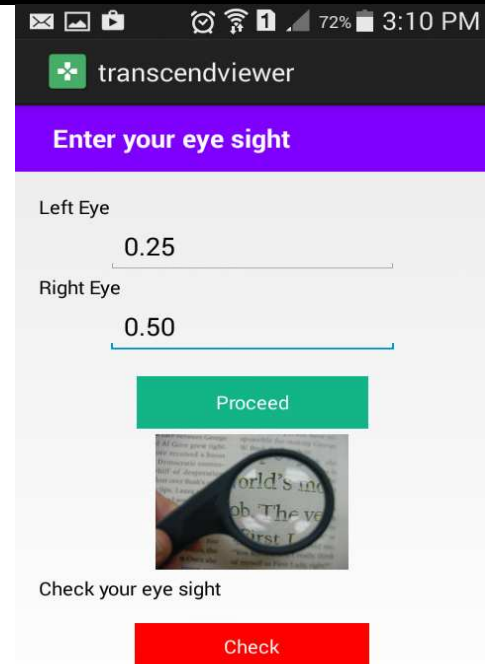


Fig. 2: User Entered his Eye Sight

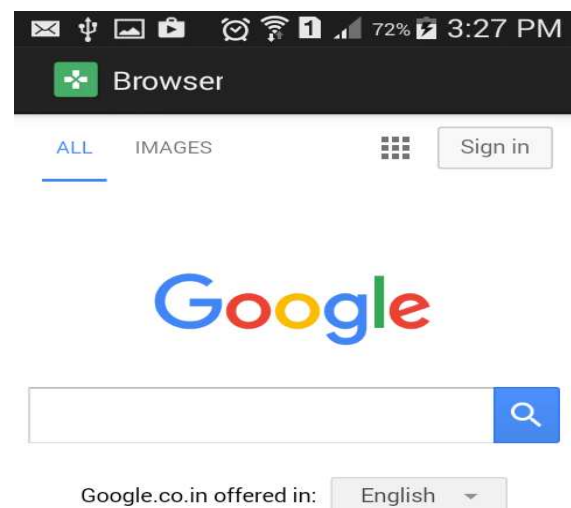


Fig. 3: Nomal Google Page

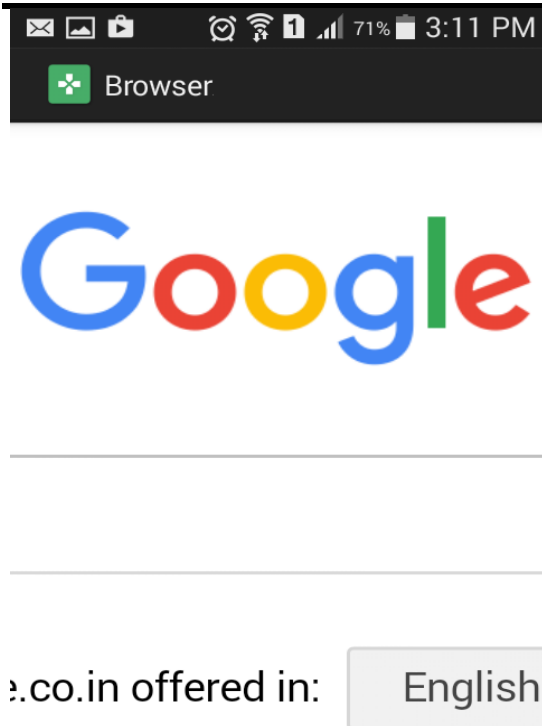


Fig. 4: Google Page zoomed according to User eye-sight level

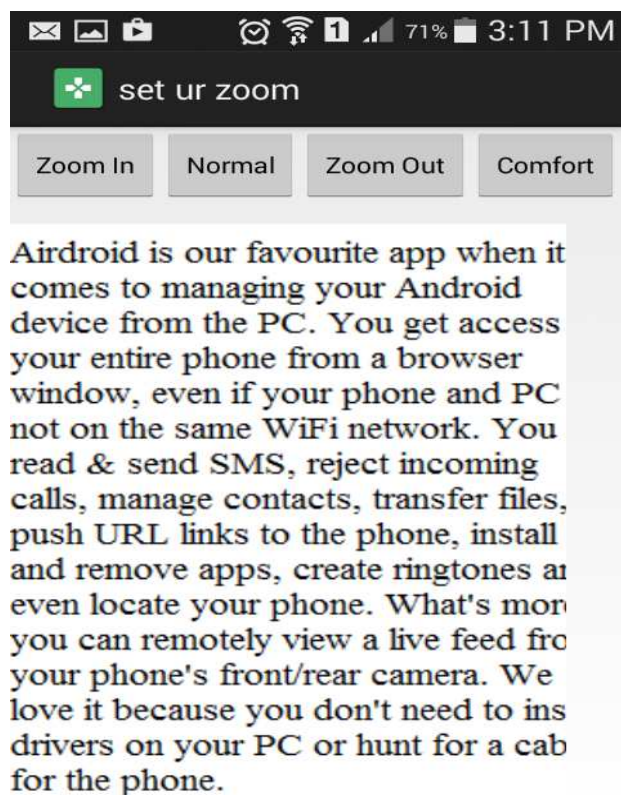


Fig. 5: Activity Test

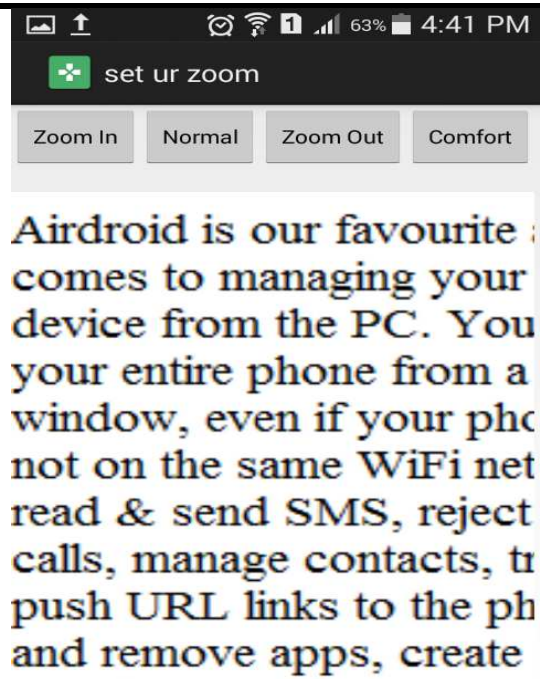


Fig. 6: On click of zoom in text size is zoomed

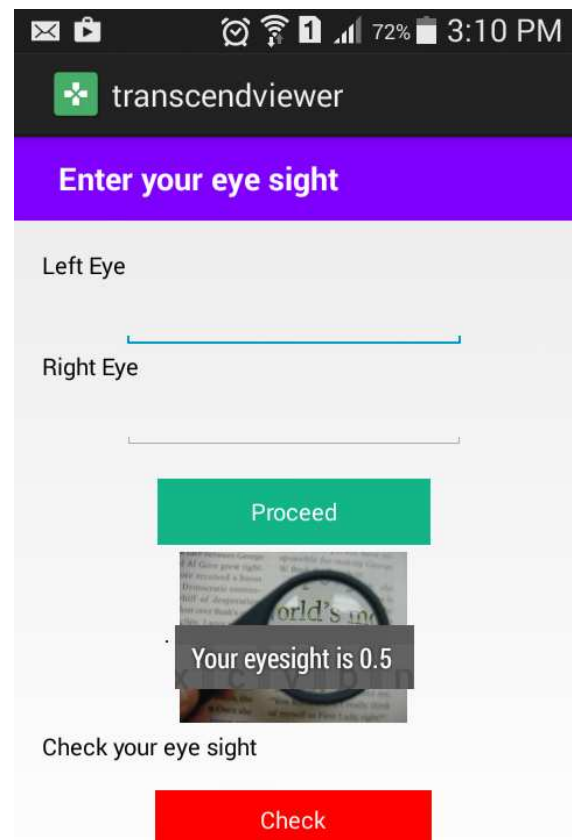


Fig. 7: Corresponding level of eye-sight is returned to user

V. ALGORTITHM

1. If user knows his eye-sight
2. Then take input for both left eye and right eye
 - 2.1. Compare the eye-sight and consider larger value
 - 2.2. Calculate the zoom scale level for the eye-sight
 - 2.2.1. Divide the eye-sight by factor of 0.25
 - 2.2.2. Multiply this number by 0.3
 - 2.2.3. Add 1 to this value
 - 2.3. Pass the calculated zoom value to the Browser page
 - 2.4. Now set the zoom value of the WebView by using SetInitialScale method
3. Else the user can use the option Check
 - 3.1. The user will be redirected to check your eye-sight page
 - 3.2. The user will use buttons to zoom in or zoom out the page
 - 3.3. On finding his comfortable reading level the user will click comfortable button
 - 3.4. Display eye-sight for the zoom value
 - 3.5. Go to step 2
4. End

VI. CONCLUSION

Zooming is a common technique used in phones to get a better view of the content on the phone. Through this paper we intent to anticipate the need of the user beforehand and zoom the page explicitly by taking user eye-sight as input. The motto of this paper is to apply this approach into cellphones, tablets or where ever applicable.

The above proposed paper gives user-comfort utmost priority. In phones generally we adjust the zoom by built-in methods but, even after adjusting the zoom levels, users with eye sight problems have to use their spectacles to read an article, blog, news and during browsing .if applied into applications this feature shall explicitly adjust the zoom level to such an extent that the user can view the page without using spectacles. In the proposed future work the feature usefulness can be further extended.

VII. FUTURE WORK

Mobile phones and tablets have made it possible for everyone to perform reading, surfing, communicating, shopping and other numerous functionalities simpler and accessible on the go. Presently in the sample application we have made an assumption for the zoom eye-sight relation .In the future the suggested work can be fully achieved by calculating best possible zoom levels for different eyesight levels. Then we want to incorporate this feature into different applications and if possible on the complete device which can be very useful for aged people and people with eye problems.

Physically handicapped can be helped by incorporating sensors by setting the eye-sight level into the device if any and detect the eye movement using sensors. High-level sensors can also be used to detect the eye-sight and automatically feed this information into the device and perform zooming.

REFERENCES

- [1] "Android in Action" by W. Frank Ableson, Robi Sen, Chris King
- [2] <http://www.androidpeople.com/android-gallery-imageview-example>
- [3] <http://techblogon.com/open-web-browser-in-android-with-specific-url-example-code/>
- [4] <http://blog.vogella.com/2011/02/21/android-intents/>
- [5] <http://developer.android.com/guide/components/intents-filters.html>
- [6] <http://stackoverflow.com/questions>