Location based Mobile Banking Application using TD region

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Abstract — *Most of the banking applications today provide a high level of security with the help of multiple features. But very few or almost none have the feature of location providing security to the user. Through this paper we mean to propose a method by using the concept of TD region, access to various banking operations can be made available to the user. We also mean to propose a method by which once the user is outside the TD region under certain restricted conditions, the features of the application can be accessed. Although our system is designed in such a way that without the user being the TD region the application cannot be accessed, we also provide this feature in case the user is in urgent need of performing a transaction. Although in this feature the level of security provided is higher as compared to when the user id within the TD region. Hence, the concept of security being provided remains paramount throughout the application and is never compromised at any stage.*

I.   INTRODUCTION

In this day and age where security is such a major concern not only in terms of data but also financial transactions it becomes extremely important to address the current issues at hand. Our application aims at introducing a rather unused aspect to provide security that is location. A TD region will be designated by every user along with the range till which the user can access the application. Whether the user can access the application or not is dependent on his presence inside or outside the TD region.

In terms of information that is being accepted by the user, along with all the personal information details which includes fields such as username, password, address the range assigned for the TD region in terms of meters will also be accepted. Once all the credentials are validated the personal information gets stored within the system along with the TD region as set in the previous step.

The users can perform transactions within the system to transfer amounts from one valid account to another. To access the features of the application the user would first have to login based on the username and password that was set at the time of creating the account. The application also includes features such as disabling the location and checking the current balance.

II.   IMPLEMENTATION

2.1 Registration phase

Registration for application: It is first phase of using our application that user has to register with the application. During registration user has to enter his/her details like customer name, contact no, account no, password, secret key, secret bit, email address, location details. The user has to choose a password which is combination of character, special symbol, and digits. After entering all the required fields user will login for the application by using password which he/she has selected during registration.

Confirmation of Registration: After all the details are entered the user needs to verify email address and mobile no with OTP. The OTP is sent to both the entered email address and mobile number. Once the OTP is verified, the user is asked to enter the TD region. The TD region is calculated in terms of distance entered by the user, within the range 10-100m.After this the details of the user are stored within the system and a regular transaction can only be performed within the TD region.

2.2 Login phase

Login for application: It is second phase of using our application. After successful registration the user will login into the application by using password which user selected during registration. If the mobile no and password matches then only the user will get successfully login into the website. If the mobile and password has not matched then user will get the error message that the login failed.

Regular Transaction: Once the user is within the TD region,regular transaction can be perfomed after the sent OTP is correctly entered by the user.

One time transaction using Two step verification: The two steps include firstly entering the combination of the secret key and secret key.Once this is verified,the second step is through OTP verification.A One time transaction can only be performed once every three hours.

III.   TESTING

Test case	Login Screen- Sign up
Objective	Click on sign up button then check all required/ mandatory fields with leaving all fields blank
Expected Result	All required/ mandatory fields should display with symbol "*". Instruction line "* field(s) are mandatory" should be displayed
Test case	Create a Password >>Text Box Confirm Password >>Text Box
Objective	Check the validation message for Password and Confirm Password field
Expected Result	Correct validation message should be displayed accordingly or "Password and confirm password should be same" in place of "Password mismatch".

Login test case

Test Case ID	Test Case	Test Case I/P	Actual Result	Expected Result	Test case criteria(P/F)
001	Enter The Wrong username or password click on submit button	Username or password	Error comes	Error Should come	P
002	Enter the correct username and password click on submit button	Username and password	Accept	Accept	P

Registration test case

| Test Case ID	Test Case	Test Case I/P	Actual Result	Expected Result	Test case criteria(P/F)
001	Enter the number in username, middle name, last name field	Number	Error Comes	Error Should Comes	P

| 001 | Enter the character in username, middle name, lastname field | Character | Accept | Accept | P |
002	Enter the invalid email id format in email id field	Kkgmail,com	Error comes	Error Should Comes	P
002	Enter the valid email id format in email id field	kk@gmail.com	Accept	Accept	P
003	Enter the invalid digit no in phone no field	99999	Error comes	Error Should Comes	P
003	Enter the 10 digit no in phone no field	9999999999	Accept	Accept	P

System Test case

Test case Id	Test case	Test case I/P	Actual Result	Expected Result	Test case criteria(P/F)
001	Send encrypted password to email	Password	Password send to email	Password should send to email	P
002	Send secret key to email	Secret key	Secret key send to email	Secret key should send to email	P
003	Send OTP to mobile	OTP	OTPSend to mobile	OTP should Send to mobile	P
004	Generate TD region	Range in meters	TD regionGenerated successfully	TD region should Generated successfully	P

IV. RESULTS AND ANALYSIS

1. REGISTRATION
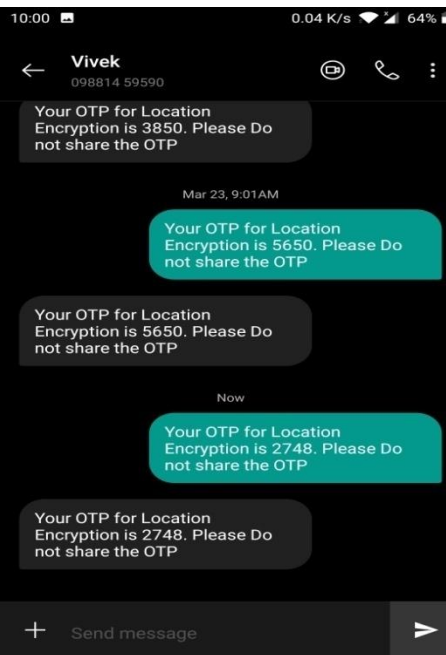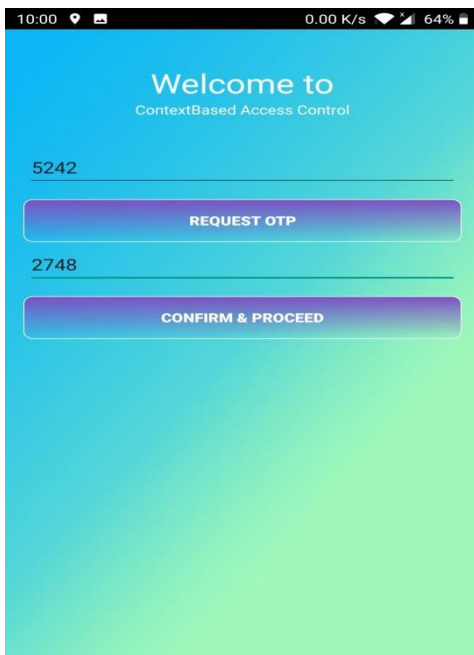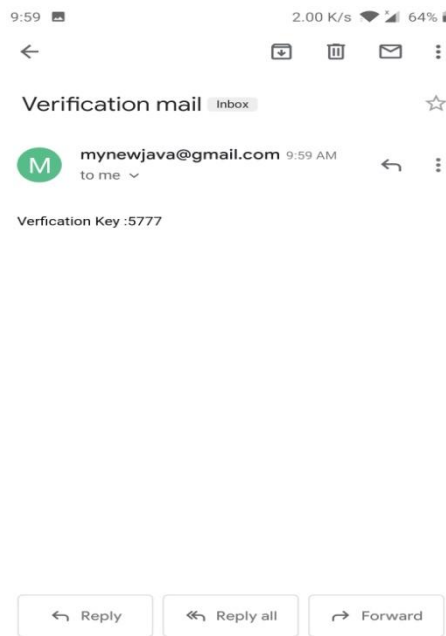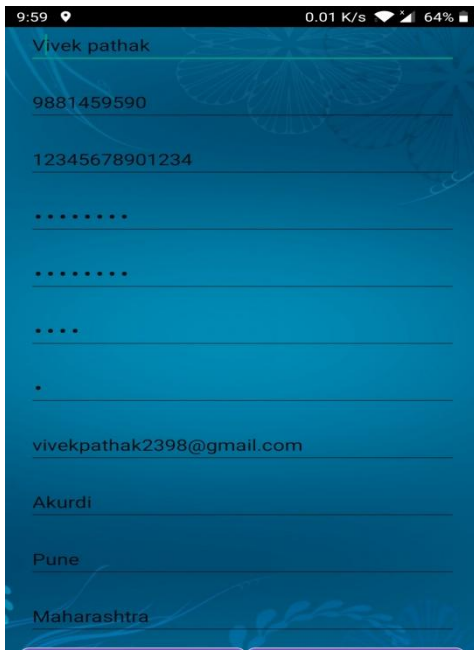
2. **TRANSACTION**
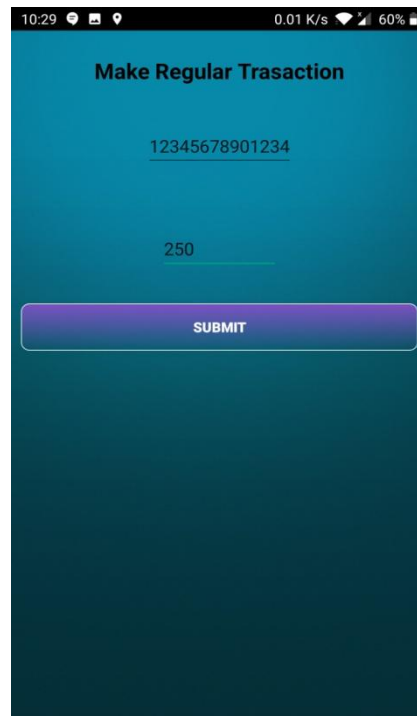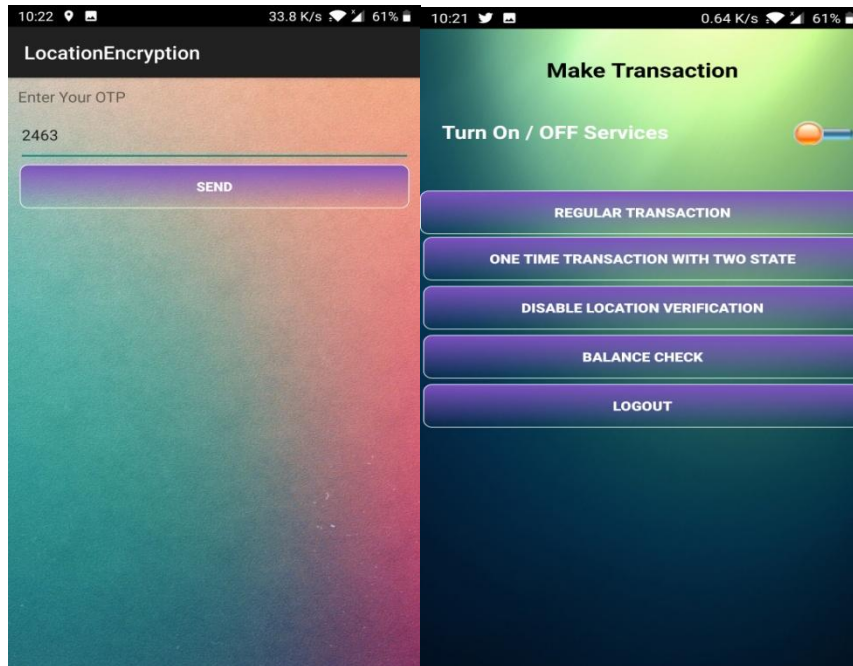
V. CONCLUSION

The concept of location dependent banking system provides a new set of features, which can be used to make banking applications more secure. The concept of Toleration Distance as used in our system can be successfully used to increase the level of security provided by the application. The concept by which users can access the system from outside the TD region is provided with additional levels of security and time constraints. Although our application is secure and user friendly the real challenge would be to merge this with real time applications.

VI.   REFERENCES

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