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USSD Based Universal Application

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ABSTRACT

Unstructured Supplementary Service Data (USSD) is a platform for Global System for Mobile Communication (GSM) Networks. USSD is a Short Message Peer-to-Peer based Application protocol that are used to create real-time connection between SMSC simulators and USSD Gateway. The technology used in this application provides features that effectively connects and manages connection for accessing user accounts for recharge as well as USSD based Survey.

Moreover, todays vouchers based of every telecommunication retailers provides specific recharge to their customers only. Also, todays Survey can be given only using smartphones. So, there is idea to give a survey using USSD real-time application.

Keywords: USSD, Gateway, SMPP, Mo-in it, Mo-cont.

I. INTRODUCTION

Nowadays, mobile phones comes with two different main features to connect with each other. One is, Using Text messaging and using Calling features. Other is installing and using applications for Communication like what's app, Facebook, etc. We have chosen first way for communication that is real-time messages, which have also two different approaches using USSD real time connection and using Text Messaging.

USSD creates real time connection, which can be used to mobile-money services, menu based information, banking services, farming, etc. USSD are of 182 character long which uses alphanumeric characters. USSD are quick codes which responses quickly and terminates after a period of time when session ends.

USSD is an Unstructured Supplementary Service Data, which is used by GSM Phone. USSD does not supported in CDMA network phones

USSD starts with asterisk (*) symbols which contains sequence of digits. This digits can be separated with additional (*) and ends with (#) that is number sign.

User receives push messages, which are used for promotions service by company.

USSD uses SMPP protocol for real-time connection, which terminated after a specific period. SMPP is a "Short Message Peer-to-Peer protocol" in which two devices are termed as peers and the real-time connection is formed for communication.

SMPP is an open standard protocol, which is designed for real-time flexible data communication and transferring short messages between devices and message centers. In addition, it allows third parties to communicate.SMPP protocol carries WAP push messages; cell broadcasts messages, USSD messages, and other third party messages. It is most widely used protocol for information exchange.

SMPP has oldest version SMPP 3.3 and latest version SMPP 5.0 which supports cell broadcasting.

We have an idea to design such application, which supports a unique code, which can be used to any telephone operator so that it can recharge his mobile number with ease of access. Currently, we are not allowed to use same code for other operator and it varies with every operator. Therefore, to reduce such complexity we have tried a unique 16-digit voucher code.

II. METHODS AND MATERIAL

By using the concept and theory of SMPP, protocol. Simulator is working and the part of survey is implemented by using K-means Clustering algorithm.

III. RESULTS AND DISCUSSION

A. Existing System

Currently, we are having limitations to recharge through currently; we are having limitations to recharge through only specific operator we belong to. In addition, we are not having freedom to check details of our Balance recharge and other details through centralized system.

In addition, we cannot give our valuable feedback related to surveys, which are mainly conducted on Smartphones or the phones, which are having Internet connection. To give our response to government campaigns, private surveys, etc. we need at least a smartphone. The way we need faster access to interact with recharges and surveying is not available in ease.

B. Proposed System

We have tried to design such a system, which will gives both of the features in a single, centralized system. We can recharge to any operator through our device at any location, which can be easily understandable and affordable to every mobile user. That may be basic Feature phones, or Smartphones. Our System will provide our recharge details as well as new recharge option so that a unique 16-digit code will be used to recharge every telephone operator.

C. Advantages

1. Easy to Access through any mobile device (Feature Phone / Smartphone).
2. User can recharge his phone and get balance information through device of any Telephone operator.
3. If user wants to give a Survey feedback then also he can give it through USSD application without Internet Connection.
4. USSD is 7 times faster than SMS or any other service.
5. Real-time Connection for a short period makes it reliable and more Secure.

D. Architecture

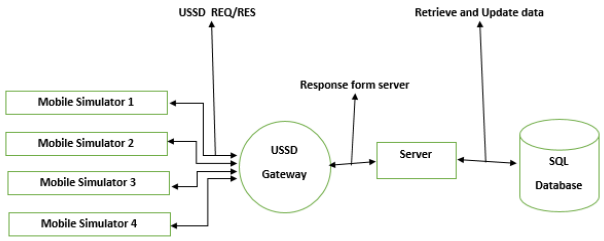
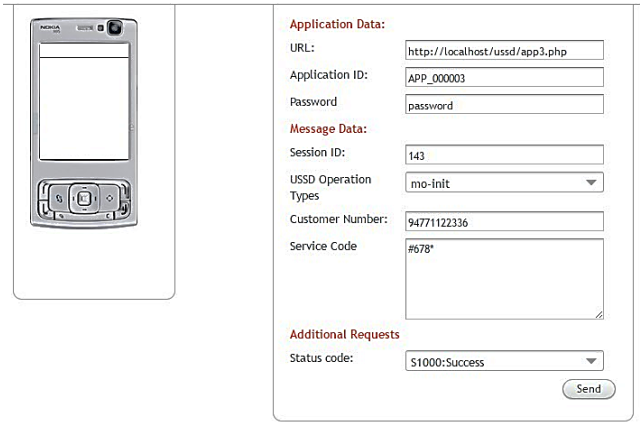


Fig. System Architecture



In the above architecture number of service provide customers or users connected to the application server through common ussd gateway.

This system reduce overhead of separate ussd code and ussd gateway for each telecommunication service provider.

E. Working

The proposed system is very efficient as it is going to connect all the telecommunication service providers together to provide good flexibility to user.

This system creates universal or common 16-digit voucher code for recharge all the service provider customer by common USSD code. Therefore, that's why this system is more flexible than existence system.

IV. CONCLUSION

Reliable service and Real-time sessions can be formed to create a centralized system to mobile recharges and USSD based surveys. Surveys can help to people to interact without internet connection and recharge his phone through USSD portal without having extra-overhead. Our System gives flexible access and easy to understand sessions to connect users.

V. REFERENCES

[1] Trevor Perrier, Brian DeRenzi. USSD: The Third Universal App.

[2] R. E. Anderson, W. Brunette, E. Johnson, C. Lustig, A. Poon, C. Putnam, O. Salihbaeva, B. E. Kolko, and G. Borriello. Experiences with a transportation information system that uses only GPS and SMS. ICTD ’10.

[3] Sanganagouda, J., USSD - A Potential Communication Technology that can Ouster SMS Dependency. International Journal of Research & Reviews in Computer Science, 2011. 2(2): p. 10.

[4] Timothy Y. Wikedzi1, Ramadhani S. Sinde2. System Analysis and Design for integrated sponsored SMS/USSD Based M-Services, a case study of Maternal Health M-Service in Tanzania.

[5] www.diaglostic.com. USSD Services for Interactive Mobile Users. Building User-Friendly Mobile Telephony Applications Using Dialogic® Distributed Signaling Interface Components.

[6] Tejas Naren .T.N, Shankar Siddharth .K.A, Sanjeevi Lr. Cloud Storage And Retrieval Of Information Using Ussd In Phones.

[7] Planet IT- USSD center. Planet Group Ka 66/C, Kuril, Badda, Dhaka info@planetgroupbd.com www.planetgroupbd.com

[8] C. M. Danis, J. B. Ellis, W. A. Kellogg, H. van Beijma, B. Hoefman, S. D. Daniels, and J.-W. Loggers. Mobile phones for health education in the developing world: SMS as a user interface.

[9] J. Chen, L. Subramanian, and E. Brewer. Sms-based web search for low-end mobile devices.

[10] C. Asiimwe, D. Gelvin, E. Lee, Y. B. Amor, E. Quinto, C. Katureebe, L. Sundaram, D. Bell, and M. Berg. Use of an Innovative, Aordable, and Open-Source Short Message