Campus Short Message Service System – Classifying SMS Effectively

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ABSTRACT

In recent years, Short Message Service (SMS) has been widely exploited in day-to-day communication. A general concept of Campus Short Message Service (CSMS) is to receive the query of any user and send the appropriate reply to the same user related to that particular query about any department of the organization. Here the main concept in this paper is about SMS Classification for an organization, especially educational institutes. After receiving SMS of user the system categorize the SMS according to the SMS acronym and forward it to the respective department, then the respective information will retrieve from department database and forward it to the main server and from main server to the respective user through mobile gateway.

General Terms

Natural Language Processing, Pattern Recognition, Data Mining, Artificial Intelligence

Keywords

SMS classification, information retrieve, mobile gateway

1. INTRODUCTION

Our team had searched much software based on SMS classification concept. So we found very little amount of software, where the Short Messages are classified with huge numbers. Instead of this many software provide SMS broadcasting service and some provides on demand message service based on some keywords.

The biggest e.g. of this one is reality shows are in peak like anything and for each contestant the viewer needs to vote as their favorite with predefined code displayed. Once SMS of viewer hits the server, it classifies SMS based on contestant ids that was displayed and are predefined. So, we got motivation from this and thought the same in bigger manner, where we plan to make the software to give this SMS service to student of a collage on demand. This makes our software with higher intelligence and with huge capacity to deal with many numbers of Short Messages.

So, we are presenting a concept of providing a service for the student of a college via SMS. Where a student of a college will send the SMS to the public number which is provided by the college, where the SMS is received by that mobile number of the college, then it sends the SMS to the web server. Herein the web server this SMS is replied with the desired answers which is been already entered by the respective departments, through the mobile as a gateway.

Now to develop software as specified above we will require classifying the receiving SMS at the server side. We need to define some acronyms which will define the respective department such as admission, time table, sports, placement, etc. Here, SMS classification remains the important task which leads to send the SMS to respective department and will generate the correct reply.

1.1 Related Work

Many SMS Classification systems has been developed by using some algorithms like nave base decision trees, naïve-Bayes, rule induction, neural networks, nearest neighbors, and lately, support vector machines.
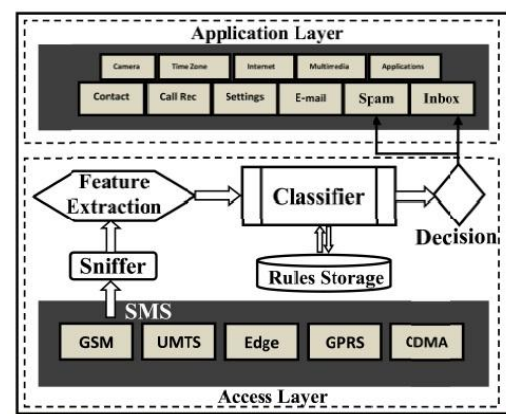

Figure: 1SMS Spam Detection Architecture.

In the above diagram the concept of SMS Classification is used [2]. In this the important SMS get classified from the spam. The SMS sniffer module captures the SMS from the modem in a specific format. The SMS user data is extracted to analyze the message and determine whether it is important or spam. The Classifier module performs some decision making action to classify SMS and Spam.

1.2 Need of Campus SMS System

In today's world people are too busy to get time for other relative work such as to get any information about organization or to make enquiry about any government project because it is so lengthy process. They became so handy with the mobile phones to get all the relevant information.

Our concept is very useful in such situation. Our concept is to provide information to the user on their demand or according to their query. User can get any information of any organization, he/she just have to type the query no his/her mobile and send the SMS to the public number provided by the organization and he/she will get the relevant information in their home or any where over his/her mobile

1.3 Basic Requirements

As the classification is our key concept to implement in campus SMS service, so we need different department's computer attached with main server over LAN network. One mobile phone (modem) should be permanently attached to the main server to receive the SMS of users. Computer specification should be same as personal computer like 256 mb RAM, 80 Gb hard drive, 2.9 Ghz (C2D) processor.

1.4 Proposed System

Overall structure of the proposed Campus Short Message Service System in shown in fig 1.
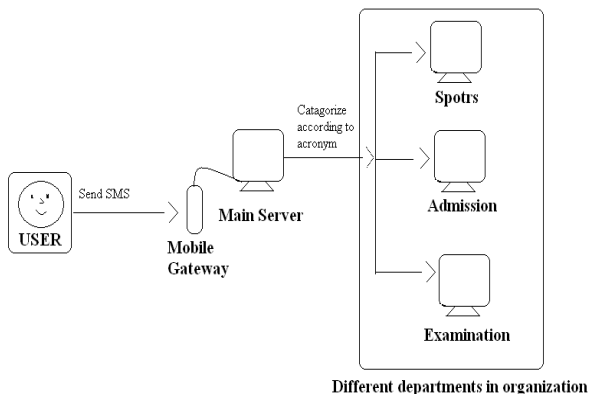

Figure 2: System Structure

In this above system a user will send the SMS to the public number which is provided by the college, where the SMS is received by the mobile gateway of the college, and then it sends the SMS to the web server. Here in the web server this SMS is separated according to the acronym in the SMS and forward it to different departments.

Then the information get retrieved from the department database and forward again to the web server or main server and forward the data to the respective user through the mobile gateway.

Now to develop software as specified above we will require classifying the receiving SMS at the server side. We need to define some acronyms which will define the respective department such as admission, sports, examination, etc. Here, SMS classification remains the important task which leads to send the SMS to respective department and will generate the correct reply.

1.5 Proposed Model

We have shown the actual processing which we are doing on SMS before we categorizing it [1] in Fig.2.

1.5.1 SMS Collection

This step gathers various SMS documents. This is like the inbox where the SMS comes. As soon as the SMS comes into inbox of the mobile gateway it takes for the further processing.

1.5.2 Preprocessing

At this stage, terms that do not provide any information about class or category selection are to be removed.

Preprocessing includes three concepts here:

1.5.3 Stop-word Removal

Stopping is a process of removing most frequent words that exist in SMS by using a stop words dictionary e.g. and, of, into, onto, what etc. Here we are removing such word from

the SMS which make no sense in searching data in the database. If we take an example or SMS "what is the last date of admission?" then here what, is, the, of are the stop words.
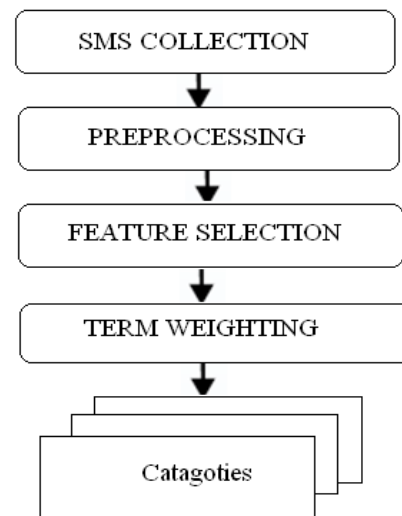

Figure 2: SMS Classification Model

1.5.4 Word Stripping

Post fix stripping is used to remove the postfix of any word and convert it into its original form. For example "playing" contain "ing" to its postfix, in this we are removing such "ind", "ed" etc and turn it into its original form.

1.5.5 Word Stemming

Stemming reduces the occurrence of term frequency, which has similar meaning in the same document. Porter Stemming is widely used stemming algorithm.

1.5.6 Feature Selection

Many feature selection techniques are used in the area of text classification such as mutual information, CHI statistics, Information Gain, Term strength, document frequency, etc. In our classification document frequency thresholding is used for feature selection.

1.5.7 Term Weighting

In term weighting we are checking the words from SMS to the query present in the database. If the words are equals then increment the counter. According to how many words are equal to the particular query weight the SMS is categories.

2. APPLICATIONS

There are many applications of Campus Short Message Service. In this section we examine some of the SMS classification applications.

2.1 User Friendly Service

User can take the required information by sending message on a public number easily. User can be on any place, he can get the information about the organization very easily.

2.2 Better Enquary

Because of this concept there is not any need to be in a long queue to make enquary of any thing. User can make enquary on his mobile by sending is query on a public no from his home or any where.

2.3 Providing Information

No need to provide the information individually to the user, just update the information on the server database and user will get that information from that server directly.

2.4 Better Understanding of Query

Today, we live in rapid and fast moving world- this poses new challenges like coping up with the new generation of text messages. One may ask "what is this new generation?" Previously people were using full length texting for conveying the information. But now we are observing cut down in the full length texting. Instead people prefer to text in short forms of the standard word like "are" has become "r", "therefore" has taken a form of "there4".

3. CONCLUSION

Campus Short Message Service is the concept can be use in any college or any organization. It is developed to make the user friendly environment i.e. user can easily interact with the organization or take any information over their mobile phone by sending his/her query over one public number which is provided by the organization.

4. ACKNOWLEDGMENTS

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