Webauto_OSSE: University Circulars to Social Media Using JavaScript Open Source Server Environment

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Abstract

An accessibility of up-to date information regarding the events happening in the organization or institute is critical for its stakeholders primarily students. This task is usually accomplished through either the use of on-wall notice boards or posting on the university's website in the form of a PDF document. This process although efficient on the surface doesn't always guarantee the flow of information. Another challenge is that the students don't visit these websites frequently or may miss details due to unforeseen circumstances. To overcome this problem, in this paper, Webauto_OSSE is proposed which automatically scrapes the websites on a regular basis and posts themost recent notices on platforms frequently visited by the student i.e. social media platforms like Facebook, Instagram, etc. This helps in a more direct and appealing way of information flow in the form of image format rather than a PDF. This method of circulating notices would be much more efficient and would result in a much lesser communication gap between the organization's administration and the major stakeholders i.e. students.

Keywords: Automation, University circulars/notices, Javascript, Open Source Server Environment.

1. Introduction

There aremany systems in educational institutions where automation has played a very important role such as attendance process, library management systems, placement activities, etc. The major issue in compiling information in these systems is the flow of suitable information between the administration and the stakeholders [1]. The flow of latest information is crucial in the functioning of an institution. It helps in keeping students up to date with academic details like project submission deadline [2,3]. It also helps in updating students regarding anything new or change in their schedule like holidays, date sheets, etc. It also helps the college administration to operate consistently if all the information is relayed at the proper time.

In this paper, an automated method is proposed for increasing the efficiency of flow of information between the higher administration and stakeholders, primarily student community. In Existing state-of-the-art systemsthe aim is to make several generic processes of Institutions/Universities more easy and convenient to handle. However, they do not revolve around bridging the communication gap between the students and the administration.

In this paper, an automated method using JavaScript Open Source Server Environment, Webauto_OSSE, is proposed which aims at automating the process of notice circulation through the use of social media. The use of social media in our system is significant since students won't be willing to go through a specific website or application on a daily basis to keep track of all the current information, no matter how great the system is. Moreover, Webauto_OSSE uses some of the most widely used social media platforms for the circulation of information of the university. In addition to this, students could also turn on post notification so as to get notified whenever a notice is posted on the page.Webauto_OSSE uses a program in Javascript using Node JS framework which will automatically scrape the university's website and download the latest notices/curriculums, converts them from PDF to PNG format and check if it already uploaded on the university's website, if not then it will post that image along with the caption associated with the notice.

Outline: This paper is organised as follows:Section 2 discusses the related work. Section 3 and Section 4 show the proposed methodology and experimental evaluation respectively. Section 5 concludes the proposed work with future scope.

2. Literature Review

This part gives a perspective of literature relevant to the automation system in universities. In [4] a College Student Information Management System is discussed. All the way through this system, students are allowed to input academic and personnel information into a database of a CSIM with accuracy and can access the information easily. The main issue with this system was that it didn't allow admins to upload the latest information happening in college [4]. In [5] a student services system was proposed based on Short Messaging Service (SMS) for colleges. This system incorporates a PC associated with a GSM modem.The main problem with this was, it only supported one-way communication i.e admin to students and didn't support other formats like PDF [5].In [6] proposed an Online Announcement Displaying System (OADS) for Tanzanian schools which obliges clients to sign into the e-notice board framework to get significant information. It supports 2-way communication along with PDF and other formats. The main issue is that it didn't have an event tracking and mail sending option. A framework for automation of placement activities was designed in [7] that can be used by the placement officer of the college to manage the student information with regard to placement.Further, in [8] an android application for smart college is designed. The main purpose was to add mobility and automation to the process of managing manual work being done in an institute so that the data which is passed to the students in the form of documents is faster disseminated through the application.In [9] automation of college processes that provides an application called Unified campus that enables students to access the information about the admission, academics, placements, transport as well as the cultural activities[9]. All the state of the art work in the area of automation focuses on smaller modules and have not used a more open and secure environment. In this paper, the online information dissemination is efficient with the help of Javascript open source server environment.

3. Proposed Methodology

In this section a step wise working methodology of the proposed work, Webauto_OSSE is discussed. The methodology is divided in to three main phases: *first*, Harvesting of recent circular links, *second*, running the script with NodeJS and *third* checking if the harvested link is the legitimate link or not.

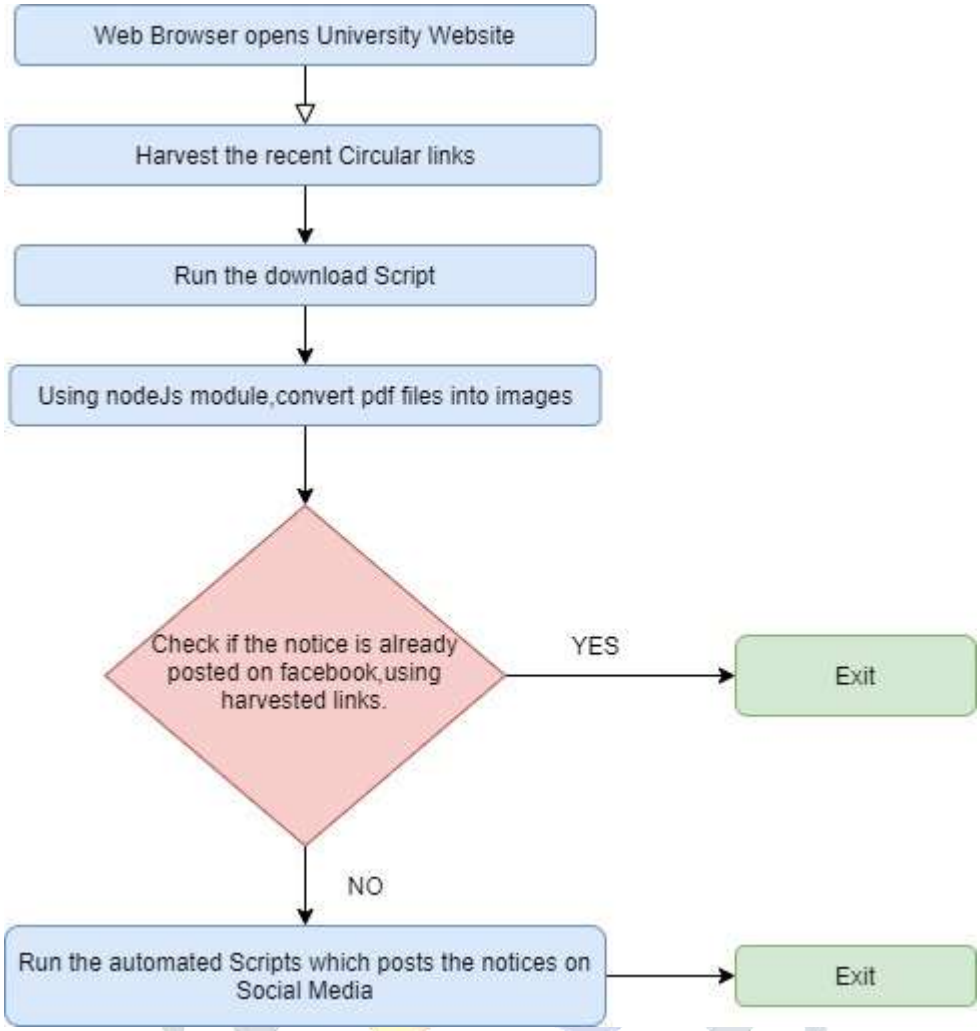

Figure 1: Flow Chart of the Proposed Webauto_OSSE

A detailed working of Webauto_OSSE given in Figure 1 is explained as follows:

- The application begins with opening the university website in a web browser.
- Then going on the Notices and Circulars Page of the website and Extracting the recent Circulars links from that page.
- Now Download Script runs which downloads the pdf files from those links.
- These files which are in PDF format are then converted to image files(jpg) format using NodeJS Modules..
- Now Check if the Notice is already posted on Facebook using downloaded links.If Yes,then Exit the application.
- If No,then run the automated script that post the jpg images(Circulars) on Facebook page of University

The process of downloading the indented link/image is further explained in section 4 with experimental verification with the help of adjoining screenshots of the running application.

4. Experimental Results

This section provides the experimental verification of Webauto_OSSE. This section explains all the steps from uploading till downloading the relevant information by the stakeholders. For a more purposeful explaination, the data used for this study is collected from the official website of Guru Gobind Singh Indraprastha University, Dwarka, Delhi [10].

Figure 2: Guru Gobind Singh Indraprastha University Website

The script requests the University website and establishes a secure and stable connection with the website through a Web Browser. It then opens all the new notice links mentioned below parallely which downloads all the pdfs and convert them into the suitable size shaped images simultaneously (Figure 2).

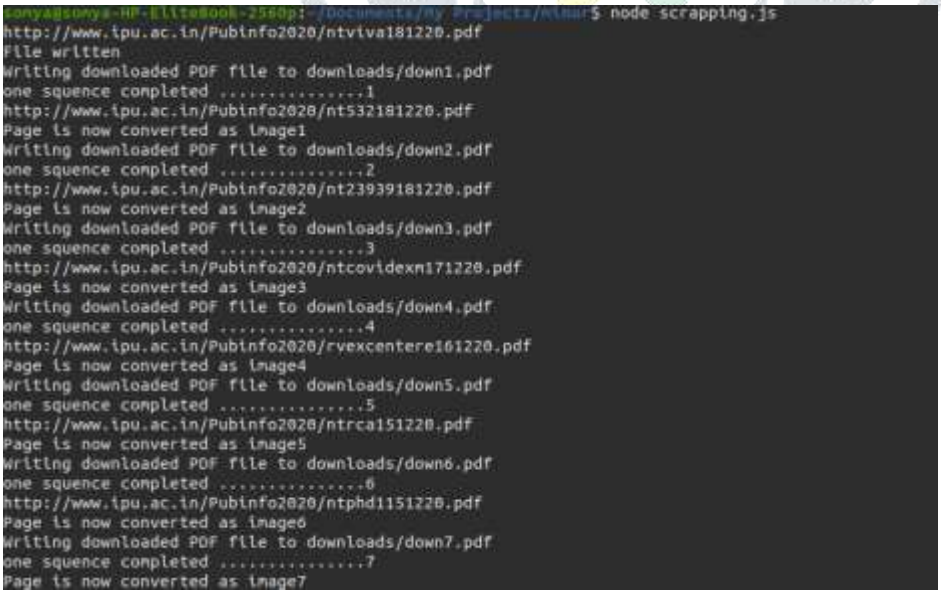

Figure 3: Output of scrapped links

All the notices are scrapped and harvested and stored in a json file after converting them into images. The harvested json file contains the images and their captions scrapped from the title of the circular. The above output shows that how the website is scrapped , like it goes and downloads each of the pdf link and then converts into suitable images (Figure 3).

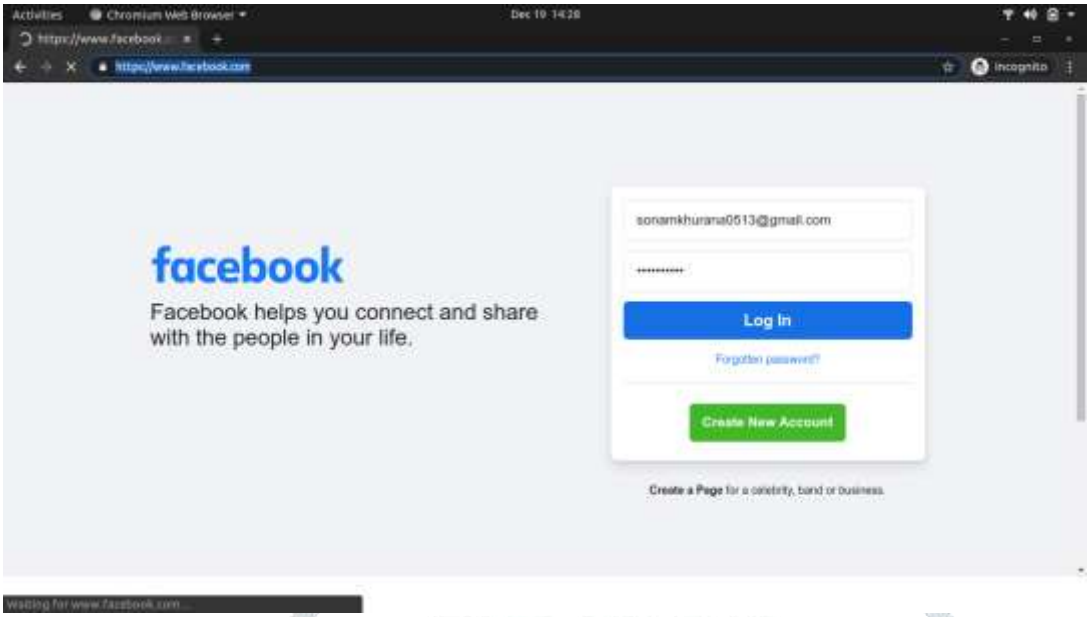

Figure 4: Logging into Facebook

The script then, logs into the Facebook using the credentials provided by the admin of the page. No human intervention is required, the script automatically open the Facebook page in a new Chromium browser and opens Facebook itself, and will enter the credentials passed to it, and will successfully login into it (Figure 4).

Figure 5: Uploading Notices to the Facebook

The script automatically starts posting the new circulars, if any, on to the Facebook . It posts the circulars with the proper captions and after converting the PDF notice to the images for a better readability for the students. It will automatically post all the new notices, after checking in the harvested

file, and then, will upload on the social site (Figure 5).

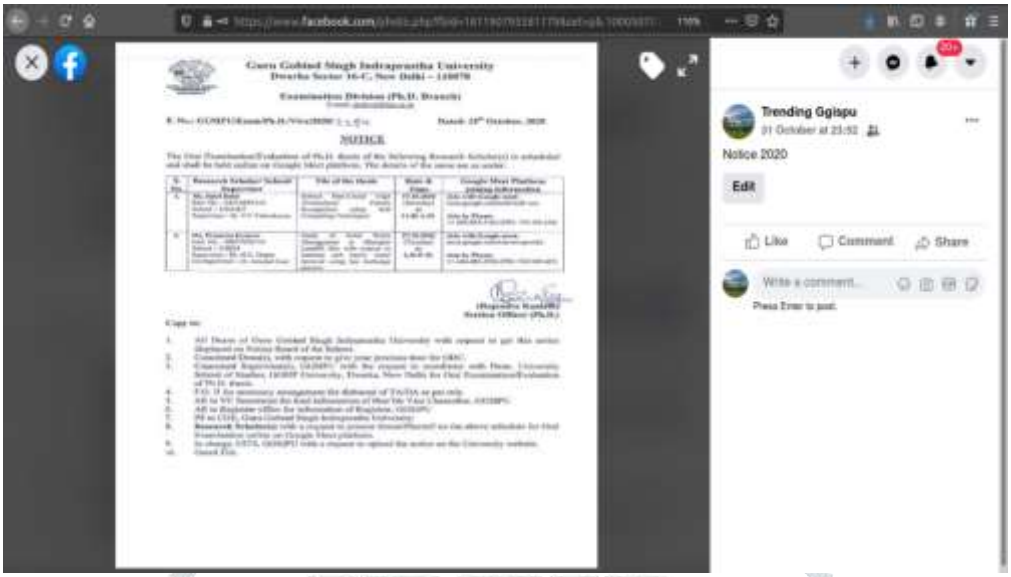

Figure 6: Uploading Notice on Facebook

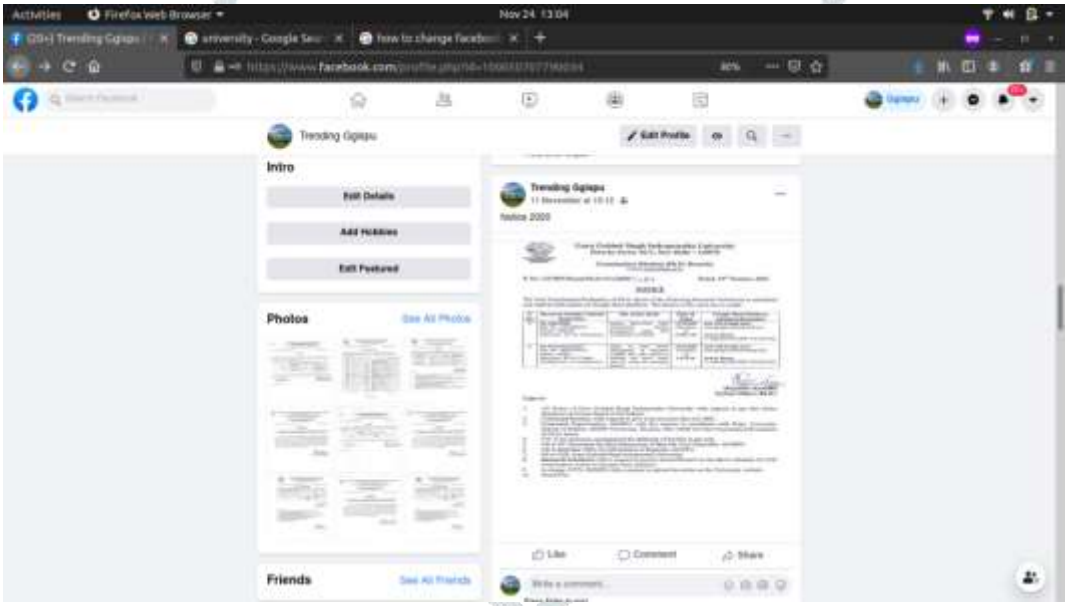

Figure 7: GGISPU Page on Facebook

This is the Guru Gobind Singh University Page on the Facebook. Here, all the important circulars are uploaded with their proper captions regularly. Any students wants to check the circular can visit the page, instead of going to the website and trying to verify by opening every second link (Figure 6 and 7).

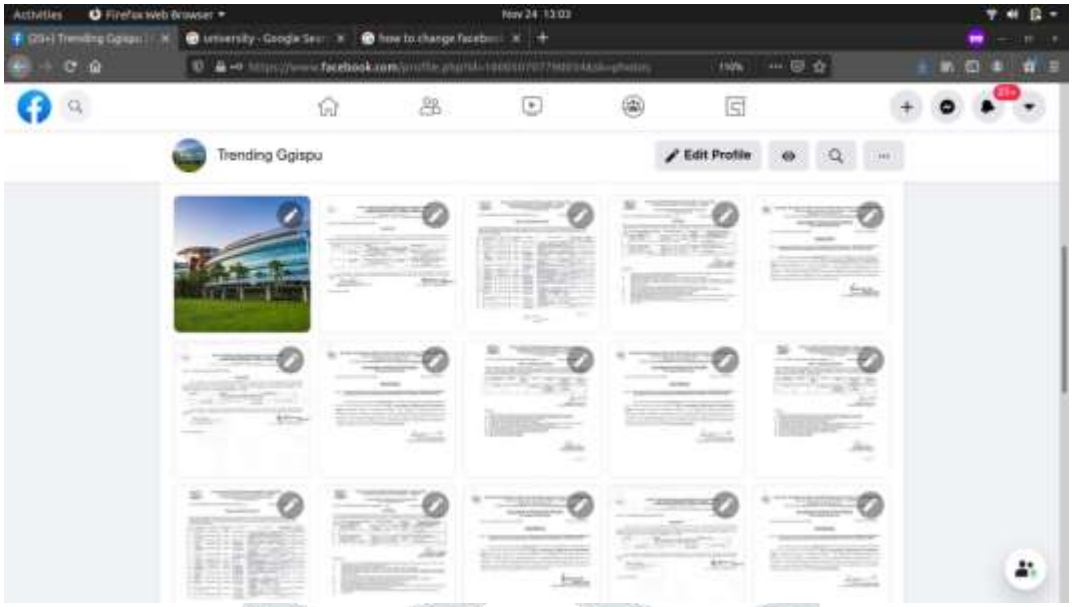

Figure 8: GGISPU Facebook Page

The picture above shows all the posts uploaded on the Facebook Page of the Guru Gobind Singh Indraprastha University. It is very easy for any student to find and read any circular here (Figure 8).

5. Conclusion& Future Work

As nowadays, social media is more popular, so if anyone does not check the website, he/she will be aware of the posts of the notices on the page.The proposed Webauto_OSSEsystem offers reliability, time savings and easy control of recent and relevant information to students from University's website. It provides security and a system that reduces the work and resources required in traditional processes.

In this paper, the proposed method is able to update all the latest circulars of the GGISPU website on Facebook, which can thus be tracked. Webauto_OSSE provides a new way of computing and displaying an operation on Social media platforms with responsive and attractive user interface.The application will greatly simplify and speed up the notice updates and management process.Thus, on the basis of literature survey and by analysing the existing system, Webauto_OSSE will not only aid the automation to the college, but it can also help any other organisation which has been using traditional notice board.

Webauto_OSSE can be extended to make it available to different social media platforms like Instagram, Twitter, etc. It can be made for the website of any organisation to upload their circulars on social media platforms. The automation script can be made automatic, so it runs after every fixed interval of 15 minutes without any human intervention. Notices can also be classified into different categories based on the degree of urgency using NLP(Natural Language Processing). Most urgent notices would be posted immediately, followed by less urgent ones.Circulars can also be sent to Students' Email Accounts (if provided email addresses) and WhatsApp accounts automatically. Further, this can be used to help people understand quickly the topic of circular, appropriate captions can also be added to the Facebook post reducing the time required to identify if particular notice is useful for him/her or not.

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