Automated Notice Board using Rdbms

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Abstract : Traditional school and college noticeboards lead to significant paper wastage. It is normal to have misunderstandings between interested parties. In this article, several concepts are integrated in the field of computer science and research in a more effective, with respect to cost, approach to address the issue using smart noticeboards. A single board R-Pi machine is used in which an ever-active python script runs that utilizes Tkinter image recognition module. Following the update, new photos are self-downloaded from the google drive. This paper also suggests cloud powered digital display boards to automate driven transparency within the context of the digital village project suggested by the Government of India's Ministry of Rural Development.

Index Terms— Intelligent noticeboards, Raspberry-Pi module, nodeJS, python

INTRODUCTION

There are also issues relating to pinning up printed notes on the display boards/noticeboards: excessive paper waste, restricting the number of notes that can be placed up at a time, rendering it difficult to archive and save notices, etc. this research focuses on an intelligent display system hanging outdoor of classes/labs/offices a smart device which can periodically downloads information from a cloud based service and displays alerts effectively specific to each class/office. In its actual nature the proposed method is based on IoT, as mentioned below.

1.1 Internet of Things

The modules used for development of the products are-APIs of Google drive: For image storage, the cloud network uses the Google Drive API. Only the simple functionalities such as load, download, view, create connectivity between the host and the server.

Google Speech to Text API: The Texts to voice API are required to improvise the human-friendly nature for the smartboards.

Amazon provided services: The underlying application of the noticeboard is provided by a virtual computer run on the Amazon Web Services. The data is processed using a PostgreSQL.

Raspberry-Pi: The Raspberry-Pi (R-Pi) processors are inexpensive and effective in learning and presenting designs, so I have codeveloped one of these devices built on a Smart-Noticeboard.

1.2 Prior work

This addresses an electronically powered board focused on Press & Play devices [4]. The original notice board is modified to provide new functionality of modern technologies, which is fitted of bilateral link with manageable brightness. This may show customer awareness of the status of documentation submitted to the board [4]. The key

specialty of DNB is the wide digitally usable monitor for displaying details over different logistical things of the campus [3]. Other paper suggested a wireless notice board network photo-type laboratory layout with connected GSM modem, displaying the user's preferred message using messaging system in the populous or packed locations [6].

Many of those still exist channels work on GSM modem, and instead it basically with a regular LCD system. GSM modem including such a SIM is interacted to the microcontroller ports with the aid of AT instructions. Simpler micro-controllers are used in such products as 8051, Atmel AT89C52, ATMEGA32 etc. A cellular device is generally used to upload client-side notes [1][2][10].

1.3. Motivation & Scope

The notices that are written over the conventional notice-board by printing or writing information on a paper that occupies room, is vulnerable to interference, and needs manual labor to be placed on time and withdrawn. All relevant announcements must be posted with no hesitation. Then getting a smart digital notice board is required. The need for the hour is an elegant user interface that makes real-time note power, say, on a class notice board of increasing segment. Our inspiration is to initially use our own institution with a robust framework which helps to communicate critical notices instantly. I expect to introduce this innovation to other colleges and universities administered by governments throughout India, an aid with a better and easier way to express alerts. The program suggested could be used for constructive transparency.

By implementing the mixture of cloud environment (amazon web services) and a cloud service that can be used publicly (google provided), the suggested program tackles the cost aspect (starting expenditure, ongoing management expense) Cost-efficient and auto-regulating notice boards are built utilizing traditional Raspberry Pie boards and regular commercially accessible computer displays at a price as minimal as Rs 7000/-.

METHODOLOGY

In this section, the architecture of proposed method is discussed. Later interactions of server-client and justification for the suggested methodology are also discussed.

2.1 Architecture

Cloud tools from AWS are used to prove the stuff. On the client side, I execute a Raspberry-Pi python program which searches for any changes/alerts in the database. These changes/alerts are received from every document along with file ID's. Consequentially, the picture is replicated, then showed up on the corresponding display boards for the mentioned period frame.

2.2 Client-Side

R-Pi is used client side. To view the photos the Raspberry-Pi machine runs a local Python application built on the 'tkinter' framework. The program continually collects similar data by its tuple download into the MySQL database. The images are categorized using special fileIDs, which are saved in Google Drive. The Python Code installs the pictures in query and constantly begins viewing on the go.

2.3 Server-Client interaction

To link some display boards with that of application is relevant to a web application. The site will be reliable, safe and shall furnish every kind of methods available to control the board. The question I have decided to tackle is a typical case of distributing notes in a college to various sections of a specific class. Each segment will have its own

Segment ID and fileIDs piling up as tuples in the relation with the uploaded files. A query module is necessary to select / modify / delete a script, by title.

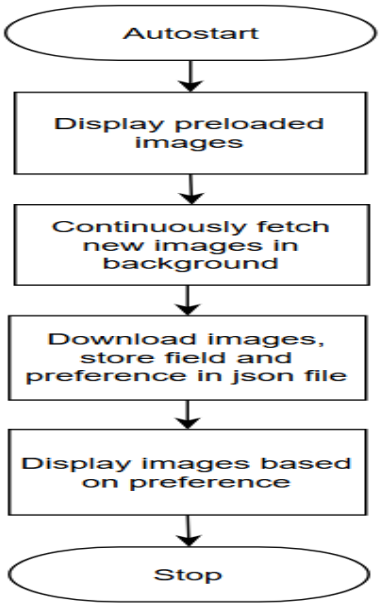

Fig 1.0 Functionality of Rasberry-Pi

2.4 Justification for the suggested methodology

For certain cases, the application requirements [9], NodeJS outperforms php. It has motivated us to conclude that nodeJS is the ideal backend tool. The R-Pi modules are versatile and able to run several scripts in one go – and this is an important feature for an intelligent display board. This is counter to Arduino [20] as well as other motherboards for microcontrollers which only run one code.

IMPLEMENTATION

This section briefly talks about the implementation of the proposed method.

3.1 Technology Stack

The program works on an effective, carefully selected modules stacks for complete production and minimizing the time required. Reliability and prompt availability have been extensively checked on the deviceTool Stack for our clever noticeboards In the AWS platform the server-side is configured as a virtual machine. This is easily done using nodeJS [8] system operating on VM built on linux. React [12] on the Consumer side has been used. React also helps with mobile-based CSS sheet in native view, and therefore React was the option required for performance. Also, R-Pi framework utilizes numerous Python-based APIs.

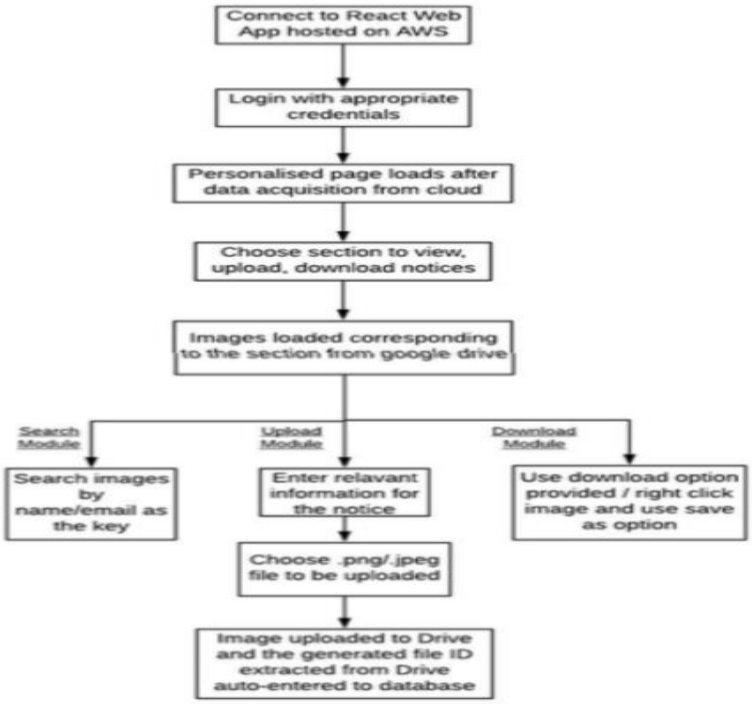

Fig 1.1 Interaction Chart for the Server-Client

3.2 Raspberry-Pi based display

The noticeboard is a Lead display designed for Raspberry-Pi operating system. A python code runs onto this machine that continuously asks the server to provide directions in updating/ uninstalling the updates that are already present in the native storage.

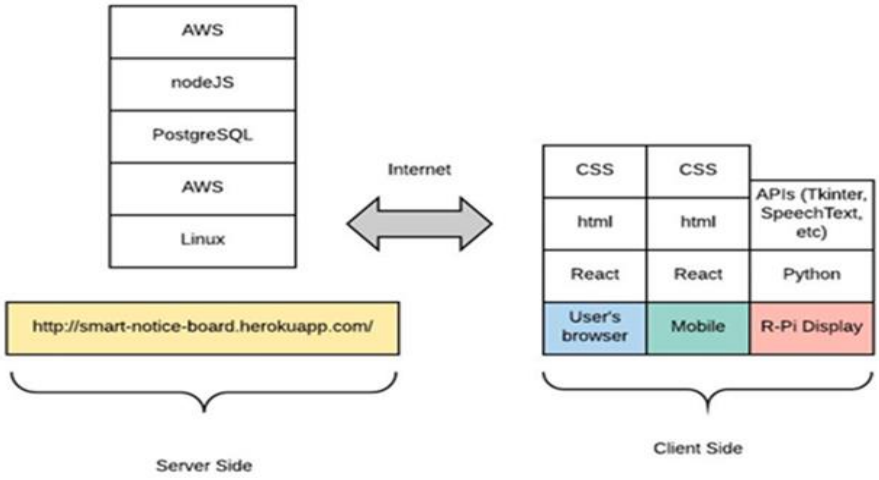

Fig 2.0 Stacking for the Digitalized notices

The program written in python shows the university sign or a regular file if no image is sent to noticeboard. The GUI software comes with this swift-correspondence toolbar, with the new message request to the right. It just included a word, time location. It is necessary to remember that as soon as the show time is set a message will delete from local storage.

3.3 Website hosted on web services

The React-generated framework lies in the core architecture. The dashboard provides customer an easy to use system to handle the notes of each chapter. Snapshots of the database are used via an admin username.

3.4 Data handling via relational Schema

Every file is through on the Google Drive and one identification number for file is generated. The image link has specifications like file Id, description, location, region, fsd, fed, place, option, section, and staff e-address. The status value determines whether object's on the noticeboard, or not. The Bridge link retains ownership over the lessons that a lecture contains.

The Instructors of the relationship maintain a list of every professor which has connections with display board. Relationships follow 3NF rules and therefore information copying is minimized.

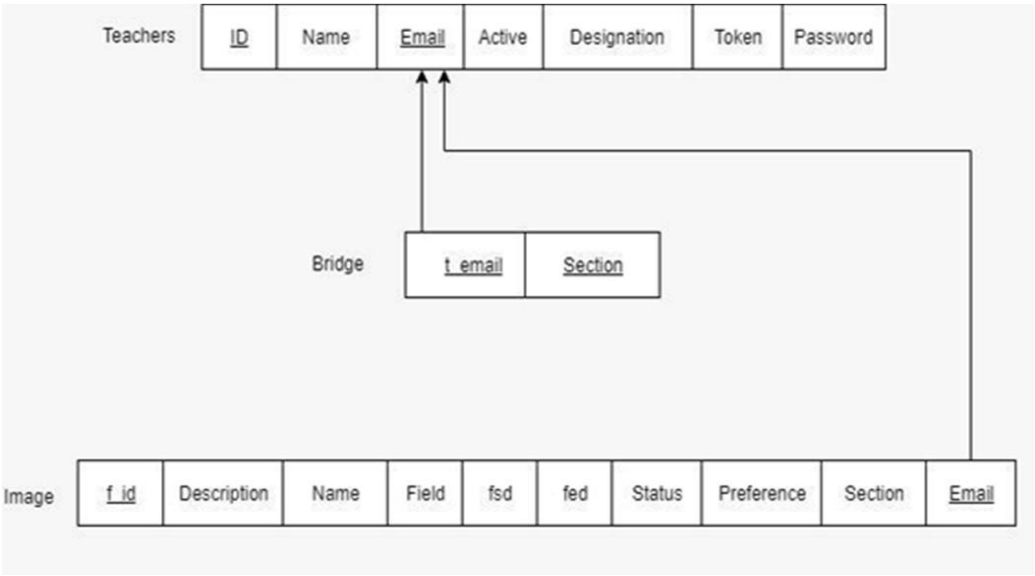

Fig 2.1 Relationa Scheme data storage

3.5 "Voice to Text" in R-Pi display

The display-based API for Speech-To-Text presented by Google collects voice feedback given by participant and scan the native memory for keyword-specific notes. To do this a basic string mapping Python program is run natively. A search function pops up on the computer showing that the student is voicing his keywords of preference for a limited examination of the device alerts.

4.0 APPLICATIONS

Within this paper I gave a recommendation the cloud driven digital notice board to facilitate constructive disclosure as well of the digital village initiative proposed by the Government of India's Rural Development Ministry. Diligent openness means sharing details at the behest of a person or agency, despite having been

requested to do so. Inside this paper I sent the cloud based digital noticeboard a suggestion to encourage proactive disclosure as part of the digital village project initiated by the Regional development Ministry of the Government of India. Proactive transparency requires exchanging knowledge at a person's or perhaps an organization's request, without it being told to.

The software is designed to provide brief notifications to enrolled village council members by the authorized panchayat admin. Senior officials will have connections to note boards situated in their village administration region, including centralized control. The conceptual framework and the interface phases here between various elements of the program

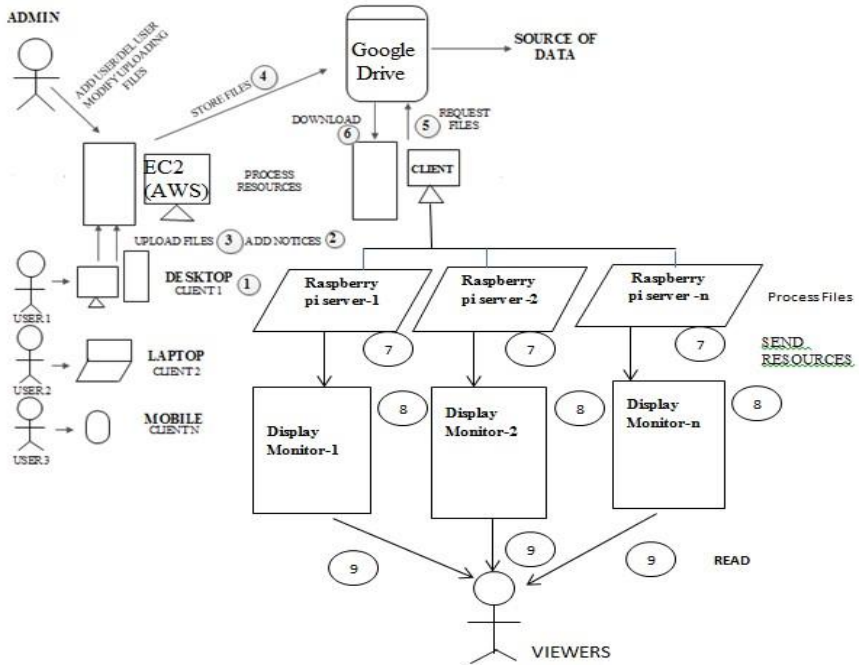

Fig 2.2 Architecture for Display System

CONCLUSION

The curriculum was properly evaluated at my college and delivered appreciable outputs. The module was remained in adequate temperature during the evaluation phase. Administration accounts were given to professors and Department head to handle the class noticeboards they are pontificating.

This is economical and is advantageous to all specified shareholders. The information is made publicly accessible while meeting the driven openness aim by Sansad Adarsh Gram Yojana proposed by the Department of Regional development of India's administration, the one of the main aim of gram panchayat to provide smarter rural system.

5.1 Future Work

A noticeboard is not just needed for an advertisement, but greater functionalities. The patented OpenCV prototype also recognizes citizens and provides a speech test feature. Extrapolating this function to determine emotional shifts in pupils as they progress through specific collection of notes is in the field of interest. A wink is written at an appraisal schedule, a happy face as a vacation poster, or a complicated mixture of feelings as an organization commences a recruiting procedure – these will then be translated and modelled. The 'addon' would be to use the

notice board to construct a sample for trend analysis that can later be used to check the feelings of the participants and to establish a precedent for potential studies.

6. ACKNOWLEDGEMENT

I am grateful to the help offered by the teaching and non-teaching personnel of the Computer Science & Engineering Department, RV College of Engineering, by the help needed during and after the research work specially during such a kind of pandemic.

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