# Automation of NGO Donations Using Azure Logic Apps

Mrs. Harshshikha Ambasta

*MCA Scholar, School of CS & IT, Dept of MCA, JAIN(Deemed-to-be), University, Bangalore*

## ABSTRACT

*In this ever-growing world, everything is developing with each passing day. Yet there are some issues that still needs to be taken care of. Our world has now changed, and so are our methods and techniques to solve a problem. A major change has been bought in the technologies that we use. We have seen days when every operation used to be traditional and function manually to the days where the same operations are carried out digitally using much more advanced ways such as automation. Automation is anything that reduces human effort, decreases the chances of error and speeds up the process of operation in tasks that we need to perform on a frequent basis. Many organizations use automation for their day to day operations yet there are some areas which still needs upgradation. We often come across situations where simple tasks such as form fill up for registration, action to be taken for those forms, storage of those traditional forms etc. are still carried out manually using the traditional pen-paper method. Having this in mind, I have used automation for the registration and donation process carried out in Non-Profit Organizations (NGOs) using an automation service - Logic Apps provided by a very renowned cloud service provider – Microsoft Azure.*

*Keywords— Automation, NGO Donation, Microsoft, Azure, Logic Apps, Cloud Computing*

## 1. INTRODUCTION

### 1.1 Automation

Automation is the creation of technologies to produce and deliver and with minimal human intervention. The implementation of automation technologies improves the efficiency, reliability, and speed of many tasks that were previously performed by humans. Usually, automation is used to minimize labour or to substitute humans in the most repetitive tasks. In the information technology domain, a software script can be run to carry out a function based on certain actions resulting in desired outcomes. There are also various software tools available in the market which can generate code for an application. The users only need to configure the tool and define the process. Technology is progressing very fast. And today, most people prefer to get things done digitally with a touch of their finger. To make life more convenient, organizations and industries are advancing their services by taking their operations on cloud and investing in cloud services rather than carrying on tasks manually. Keeping in mind the accessibility and ease for the public, one such tool put to use for the automation of registration and donation process of an NGO is Logic Apps.

### 1.2 Azure

Microsoft Azure is Microsoft's public cloud computing platform. It provides a range of cloud services, including compute, analytics, storage and networking. Users can pick and choose from these services to develop and scale new applications, or run existing applications in the public cloud. Microsoft charges for Azure on a pay-as-you-go basis, meaning that the subscribers would receive a bill each month that only charges them for the specific resources they have used. One of the automation services Azure provides is the logic apps that we have put to use in this project.

### 1.3 Logic Apps

Logic apps is one of the cloud computing services provided by Microsoft Azure that helps in automation of workflow of an organization without having to write a single line of code. It consists of a huge number of connectors that helps the organization to connect and access their data across a large ecosystem of SaaS based connectors such as Office 364, Outlook, Twitter, Blogger, etc. A logic app consists of a series of actions, each of which is a logical step in the process of workflow implementation. These actions can express conditionals (if statements), loops, and more. Critically, a logic app can also use actions to call external software and services. Logic apps can be used for simple functions like sending notifications via email, SMS, to complex tasks such as getting http requests from users and taking actions accordingly. Figure 1 shows a logic apps used for email notifications.

Figure 1.0 Logic apps to Email notification via outlook

**1.4 Use of Logic Apps for process of NGO Donations**

NGOs are Non-Profit Organizations and thus donations take up a major part of their working. Being a non-profit organization, they depend mostly on funds form the government and donations from the public. They often lack support for the development of their services and the technologies they use. Most of the services they provide are for the social and human welfare, thus donation campaigns are events that they conduct most often. In most of the NGOs, donation process is still carried out using the traditional pen-paper method making it a manual, time-consuming and error-prone.

In this paper, logic app is used for the automation of donation process for a Non-Profit Organization (NGO). This technique is carried out by hosting a donation portal consisting of a donation and registration form on the Azure IIS server which the donors can easily access and fill up each time they want to make a donation. The details each donor fills up is then stored in a database hosed on SQL server on Azure platform. Once the donor has successfully registered themselves for the donation, both the NGO and the user (Donor) gets notified via email and SMS.

## 2. LITERATURE REVIEW

During the research, valuable information and insight were given by some authors regarding the subject of cloud computing, Azure platform and logic apps which has been used for the development of the Automated NGO donations using Azure logic apps.

[1] In a paper the author is speaks about the Azure platform. Azure provides different set of service platforms where every platform is responsible for providing a specific service to the application developers. The Azure Services Platform can be used by both the applications running on the cloud as well as the applications running or on in-house systems. Azure is a cloud platform that hosts the infrastructure of your current application and also, provides compute based services that are needed for your application development needs. Azure provides a combination of all the cloud services that you require to develop, test and deploy your application.

[2] Cloud Computing is discussed by authors as the storage of data and application on remote servers and accessing them via internet rather than installing and saving them on your personal computers. The aim of Microsoft Azure is to build a web application that runs and stores its data in Microsoft datacenters. It stores data while the applications that consume this data run on premise (outside the public cloud). This advantage has been put to use for storing the data of donations made for the NGO on Azure SQL server. SQL Azure is built on Microsoft SQL server. As with other cloud technologies, an organization pays only for what it uses. Using a cloud database also allows converting what would be capital expenses, such as investments in disks and DBMS software, into operating expenses.

[3] The reason for selecting Microsoft Azure over the other cloud service provider has been explained by an author of this paper where it has been stated that Microsoft Azure is a flexible cloud platform that allows fast development, debugging and iteration of the applications. Applications can be developed with any tool, programming language, or existing framework, while there is possibility of integrating public cloud applications with existing IT environment. Extra Large (A4) Azure instance has 8 virtual CPU cores and 14GB for 0.72 dollars/hour, whereas some of the Microsoft Azure competitors offer the same services at higher costs. Not only Azure has an easy and intuitive user interface for managing virtual resources, but it offers comparatively stronger virtual machines that are sufficient to host websites for any organization demanding low to heavy traffic.

## 3. SOFTWARE AND HARDWARE REQUIREMENT

**3.1 Hardware Requirement**

- RAM: Minimum of 2GB
- Hard Disk: Minimum of 8GB
- Input Device: Keyboard, Mouse
- Output Device: High-Resolution Monitor

**3.2 Software Requirement**

- Operating System: Windows 7 or above
- Browser: any (preferred Google Chrome)
- Cloud Platform: Microsoft Azure
- Cloud Subscription: Microsoft Azure Subscription
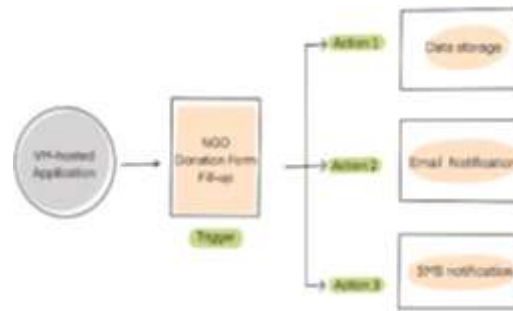
## 4. ARCHITECTURE



Figure 2.0 NGO Donation Workflow

A Microsoft Logic App works on the basic principle of workflow. Workflow in an Azure Logic App is a sequence of actions or processes defined in steps. The actions will perform the business operations when input is provided through the managed connectors. Every workflow will be initiated by the trigger being fired. Figure 2.0 shows the workflow used for the process of donations in the NGO.

## 5. PROBLEM STATEMENT

Traditional form fill-up for donor-registration and donation has many downsides to it. The process is manual hence it is time-consuming and error prone. The registration and donation process when carried manually needs the donor to visit the NGO for each and every step which is not only time taking, but it also not feasible in some situations like Covid-19 where people avoid transportation and gathering. The problem with traditional approach is not only limited to that, but also in some cases of financial donations, sometimes the middleman gets compromised, causing situations of money forgery and theft of donations which brings huge loss to the NGOs. One of the areas of concern is the maintenance of records and data in traditional database method. It not only needs a physical space for storage but also requires additional staff where it is still prone to human mistakes and errors. Backup of physical data is one more issue to look at. The traditional method of donor registration and donation forms are carried out manually using paper-pen method rather than digital method which is against Green India and Digital India campaigns.

## 6. PROPOSED SOLUTION

The Proposed Method overcomes the drawbacks that exits in the present traditional NGO donation process. By using Azure platform for integration of NGO donation and registration portal, there is a way to not only digitalize but also automate the process. Using Azure Logic Apps, integration of the organization's registration portal is carried out which is also attached to the Sql database for the storage of donation data. Implementing it using logic apps makes the whole process cost-effective and time-efficient. No additional staff is needed for carrying out the process of registration, maintaining database records or performing backups. These operations are taken care by the cloud computing services provided by Azure making the process faster, cost-effective and automated. By hosting the NGO's donation portal using Azure, security of the data is also taken care of. It is made sure that people no longer need to travel to the NGO for making a donation rather they just need to register online and fill up a simple form for making a donation making the whole process a lot more convenient and easy.
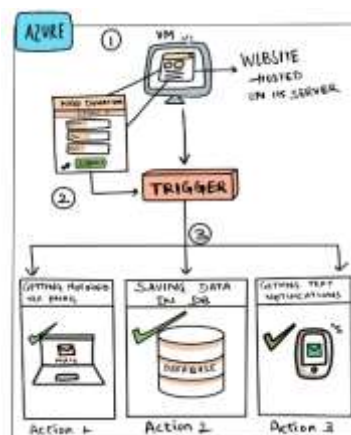
## 7. PROPOSED MODEL ARCHITECTURE



Fig 3.0 Proposed Model Architecture

Fig 3.0 shows the working of the proposed model. The NGO hosts a website containing the donation form which the Donor needs to fill up. Initially the user (potential Donor) needs to fill in necessary details like their name, contact number, email, address, donation type (financial donation, item donation etc.), donation item/donation amount, date of donation etc. Once they hit enter, it triggers action like the details being stored in the databased hosted on the SQL server. The next actions being performed includes NGO Management and the donor getting notified instantly via email and SMS about the donation form fill up. The NGO then follows up with the donor and the donor receives a phone call on their registered number for the confirmation of donation. Lastly the NGO sends one of their donations collecting staff to the address mentioned by the donor during registration. This way, the donor doesn't need to necessarily travel to the NGO.
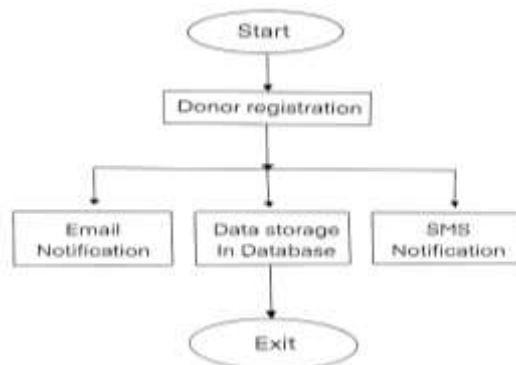
## 8. FLOW CHART



Fig 4.0 Logic Apps Flow Chart

## 9. IMPLEMENTATION


Fig 5.0 Backward output


Fig 5.1 Form Submission
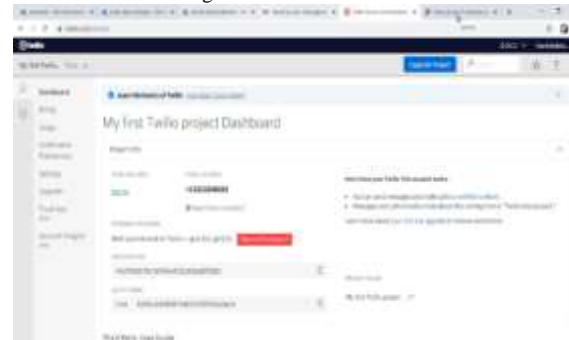

Fig 5.2 Logic App Workflow
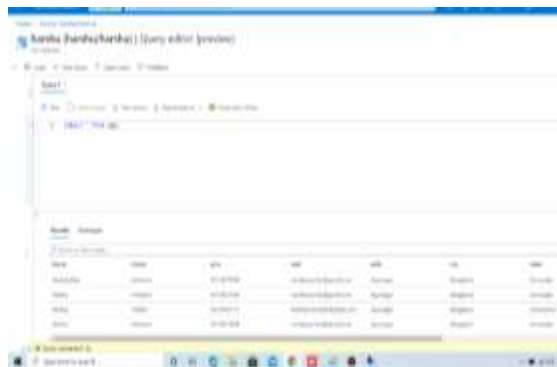

Fig 5.3 Twilio Account for SMS Generation

Fig 5.4 Data Storage in SQL Database

**9.1 Output**


Fig 6.0 Donation Success Page
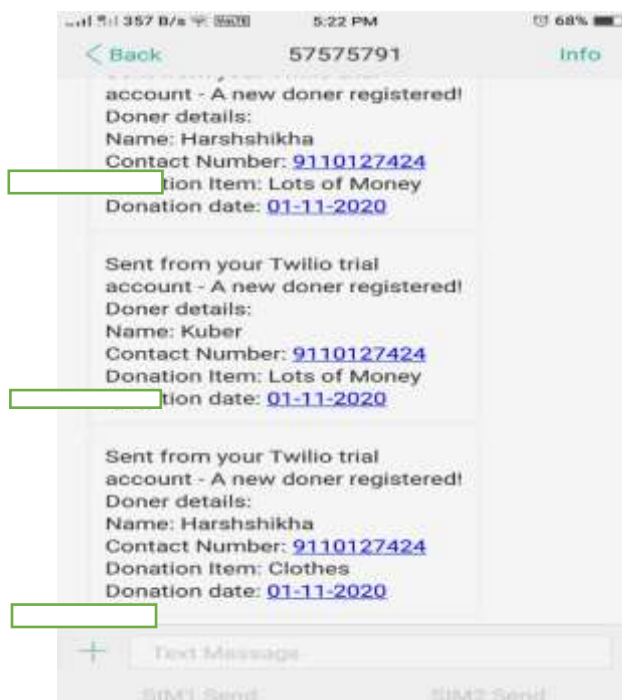

Fig 6.1 Email Notification


Fig 6.2 SMS Notification

## 10. CONCLUSION

The main objectives of the project were to design an easy, automated and time saving method for the donations that are made on a frequent basis in organization like NGOs. The aim was to develop a hassle-free donation process form the donor's perspective as well as for the organization's perspective. The proposed project makes the whole donation process digital and automated thereby becoming a paper-less, contact-less, error-less and most convenient method for donations unlike the traditionally used one.

## 11. FUTURE DEVELOPMENT

As of Now the proposed model is developed eliminating the drawbacks of traditional approach but it still has some room for improvement, extensions and enhancements that can be made in future such as including additional fields in the form like item image, increasing security by using user authentication in the form of user id and passwords. The future enhancement can be done by including login portal for donor, specifics in the form such as item image, quantity, options for donation like walk in or home-pickup etc. These changes can be done in version 2 of the project while keeping the main aim intact which is automation and advancement of the donation process for organizations like NGOs.

## 12. REFERENCES

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