

## Building Social Bot with Python and Tweepy

B.Sarala<sup>a</sup>, Rithika A. Chezian<sup>b</sup>, Praneetha K<sup>c</sup>, Nivetha S<sup>d</sup>, K.Jeevitha<sup>e</sup>, K.Ilangovan<sup>f</sup>

Dr. M.Somasundaram<sup>g</sup>

<sup>a</sup> Assistant Professor, Department of Electronics & Communication Engineering, R.M.K. Engineering College, kavaraipettai-601206

<sup>b</sup> Student, Department of Electronics & Communication Engineering, R.M.K. Engineering College, kavaraipettai-601206

<sup>c</sup> Student, Department of Electronics & Communication Engineering, R.M.K. Engineering College, kavaraipettai-601206

<sup>d</sup> Student, Department of Electronics & Communication Engineering, R.M.K. Engineering College, kavaraipettai-601206

<sup>e</sup> Junior Chemist, TNEB, Basin Bridge, Chennai

<sup>f</sup> Assistant Professor, Department of Electronics & Communication Engineering, R.M.K. Engineering College, kavaraipettai-601206

### Abstract

Twitter bots are bots which interacts with twitter as an automated user account using an Application Programming Interface (API). The social bots are programmed to carry out duties usually linked with human actions, such as liking tweets, following users, direct messaging (DM) other users and most significantly, they can tweet information, and re-tweet anything posed by a particular set of users or attributing a distinct hashtag. Most of them are utilized to carry out cardinal tasks, like tweet about natural disasters in a crucial period of time and play a major role as component part of a cautionary system. In scenarios including the chances of an important event, however, policy-making or otherwise, they are usually utilized to create a huge impact in special content by diffusing news at a pace that is not manageable with human users.

**Keywords:** Bot, Social media, PythonAnywhere, Tweepy, Application Programming Interface(API), Twitter.

### Introduction

Twitter can be used as a powerful medium to spread awareness among the public when used in the right way. The twitter bots spreads the sensational news quicker and in the simplest way possible. These bots can be programmed to listen to tweets, respond, retweet, follow up or direct messages. Thus with the use of these bots, crucial news can be spread in a rapid way which is almost impossible for human users. The bot saves the users' time and vitality.

Twitter bots, are controlled by bot software to provide an automated Twitter account. In spite of being programmed to perform tasks that shows a semblance of everyday Twitter users such as liking the tweets, and following other users, their motive is to tweet and retweet content for distinct purposes on a grand scale. The purpose of the bot has its own benefits and drawbacks.

Twitter bots can be used for beneficial purposes, like broadcasting foremost content like weather emergencies in real-time, sharing informative content as a whole, and generating automated replies through direct messaging.

### LITERATURE SURVEY

For a long time, researchers have always taken advantage of the information available in the social media platforms for granted to learn and scrutinize a broad range of ethical phenomena. As social media supplies easy access through Application Programming Interfaces (APIs) to valuable information from people's interactivity in several social platforms, they have become a powerful alternative in terms of both monetary and temporal means. Yet, the information that can be retrieved from the servers may still not solve distinct queries that researchers may likely have or the in-depth that would have usually been provided through direct questions to participants.

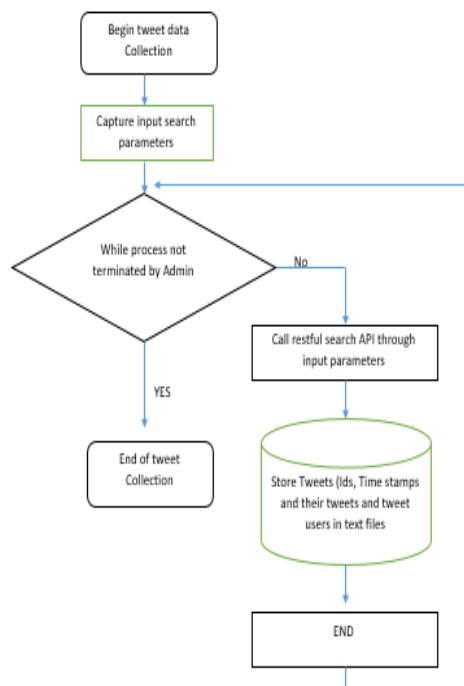
As humans are not omnipotent in the twitter platform, this in turn resulted in a diminished response rate between the twitter users. Even though the decreased response pace are dispiriting, recent experiments have been undertaken in order to investigate different paths to maximize actions with the social media users. For instance, there are various methods for recruiting volunteers through Twitter bots by deploying different strategies. But these bots had their limitations because of low security and impersonation.

The existing twitter bots are constrained in their abilities to interact with the users. To make it less time consuming and more efficient, the bots must be made more secure with the maximum rate of accuracy

On eliminating the above limitations, this approach provides the chance to connect the benefits of research in social media through Application Programming Interfaces with the copiousness of data that can be accumulated using the bots.

### PROPOSED SYSTEM

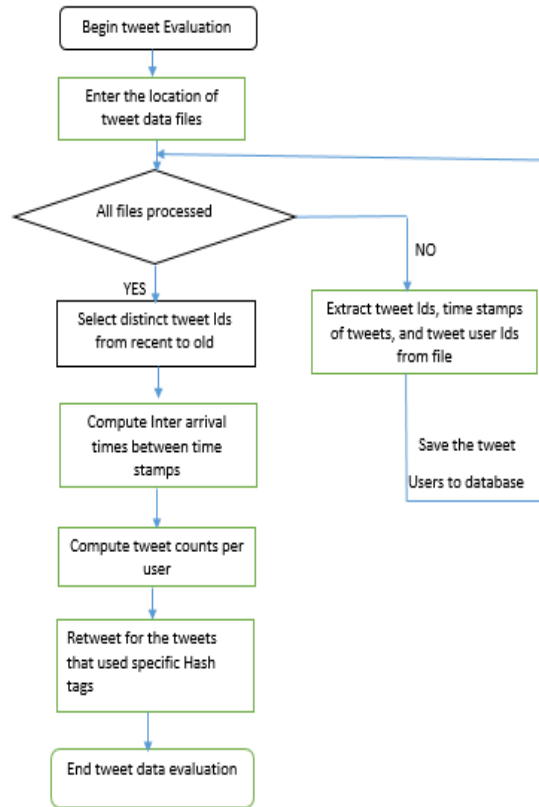
To make trivial important news from rural areas popular by retweeting it in the twitter platform in a secure manner. The bot should be able to retweet, like and comment on its own without any human guidance. The bot can be used to retweet a particular hashtag that is relevant to the user. To ensure that the bot is functioning all the time, PythonAnywhere platform is used.



**Fig 1: General architecture of twitter bot**

**IMPLEMENTATION STEPS:**

The flow chart for creating the twitter bot is shown below:



**Fig 2: Detailed architecture of twitter bot**

**a) CREATING DEVELOPER ACCOUNT**

The Twitter developer gateway contains a collection of various self-serve means that developers can employ in order to control their rights as well as to generate and control their projects and applications. This is the account where the Application Programming Interface (API) gets initiated which in turn automates our twitter account by creating a bot.

The access to nearly all of the Twitter's practicality is provided to the developers by the Twitter API. The API can be utilized to write and read data associated with the Twitter domains such as users, trends, and tweets.

Specifically, the API uncovers a lot of HTTP endpoints that are related to:

- Direct messages
- Retweets
- Favorites
- Media
- Likes
- Trends

With the use of OAuth, the Twitter API makes advantage of a broadly used authorisation protocol for authentication of each of the requests. Prior calling upon the Twitter API, establishment and configuration of the user's credentials must be authorized.

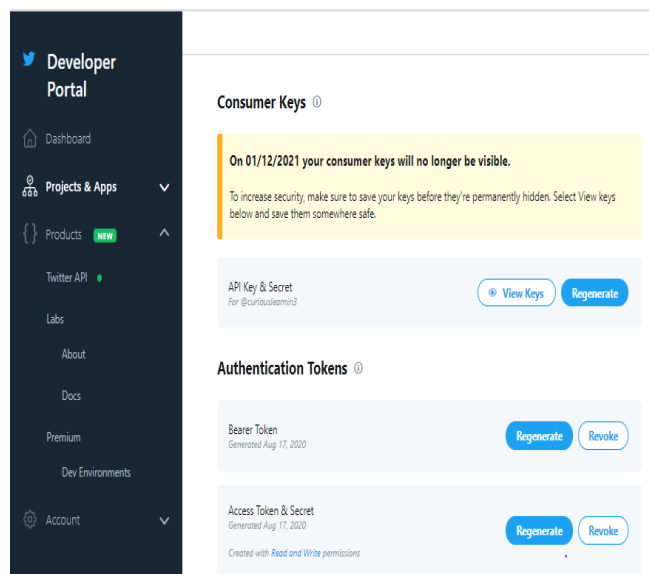
Building of different varieties of automations such as analytics, bots, and other means can be leveraged using the Twitter API.

## b) KEYS AND TOKENS

For creating the Twitter API Authentication Credentials, the Twitter API requires the authentication of request by using OAuth. In order to use the Twitter API, the user needs to create the required authentication credentials. These credentials use the following 4 text strings:

- Consumer secret
- Access secret
- Consumer access
- Access token

If any suspicious activity is detected, a set of keys is generated by the authenticated access from the users. By doing this, the account remains secure.



**Fig 3: Generation of keys**

**Consumer key** is one of the API keys which a service provider (Example : Facebook, Twitter, etc..) provides to a user. The user is a consumer who requests a assistance and wishes to use resources through the service provider. This key is used to determine the consumer.

**Consumer secret** is considered to be a "password" which is utilized together along with the consumer key. This is utilized to petition access (authorization) to a consumer's resources from the service provider.

**Access token** is a key that is given to the user through the service provider after the consumer successfully finishes the authorization. The access token denotes the access vantages of the user over a distinct consumer's resources. When the user wishes to access the consumer's data from the same service provider, the user should include the access token in a API request to a service provider.

## C) TWEETPY

## Building Social Bot with Python and Tweepy

It is an open source Python package, which provides a very easy way to approach the Twitter API using Python. An interface is provided by the API by encapsulating most of the Twitter API's complexity and adding the model layer and other essential practicalities to it. Tweepy consists of a set of classes and methods which constitute the Twitter's models and API endpoints. Additionally, it transparently handles numerous implementation information, like: Data encryption and decryption. The tweepy package is installed through the command prompt.

```
Microsoft Windows [Version 10.0.17134.1304]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\SWETHA\Desktop>pip install tweepy
Requirement already satisfied: tweepy in c:\users\swetha\appdata\local\programs\python\python37-32\lib\site-packages (3.9.0)
Requirement already satisfied: requests-oauthlib>=0.7.0 in c:\users\swetha\appdata\local\programs\python\python37-32\lib\site-packages (from tweepy) (1.3.0)
Requirement already satisfied: six>=1.10.0 in c:\users\swetha\appdata\local\programs\python\python37-32\lib\site-packages (from tweepy) (1.12.0)
Requirement already satisfied: requests[socks]>=2.11.1 in c:\users\swetha\appdata\local\programs\python\python37-32\lib\site-packages (from tweepy) (2.23.0)
Requirement already satisfied: oauthlib<=3.0.0 in c:\users\swetha\appdata\local\programs\python\python37-32\lib\site-packages (from requests-oauthlib=0.7.0->tweepy) (3.1.0)
Requirement already satisfied: idna<3,>=2.5 in c:\users\swetha\appdata\local\programs\python\python37-32\lib\site-packages (from requests[socks]>=2.11.1->tweepy) (2.9)
Requirement already satisfied: certifi<=2017.4.17 in c:\users\swetha\appdata\local\programs\python\python37-32\lib\site-packages (from requests[socks]>=2.11.1->tweepy) (2020.4.5.1)
Requirement already satisfied: urllib3<=1.25.0,!<=1.25.1,<1.26,>=1.21.1 in c:\users\swetha\appdata\local\programs\python\python37-32\lib\site-packages (from requests[socks]>=2.11.1->tweepy) (1.25.9)
Requirement already satisfied: chardet<4,>=3.0.2 in c:\users\swetha\appdata\local\programs\python\python37-32\lib\site-packages (from requests[socks]>=2.11.1->tweepy) (3.0.4)
Requirement already satisfied: PySocks<=1.5.7,>=1.5.6; extra == "socks" in c:\users\swetha\appdata\local\programs\python\python37-32\lib\site-packages (from requests[socks]>=2.11.1->tweepy) (1.7.1)
```

Fig 4: Installing tweepy package

### c) BOT INTERACTION

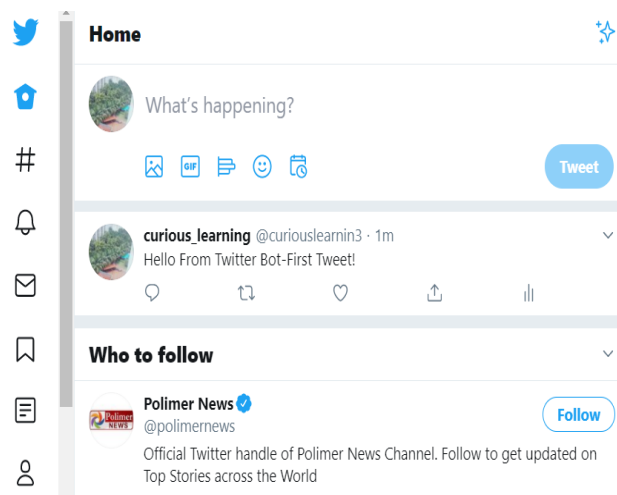


Fig 5: Twitter account with the first bot tweet

The bot is first activated by running the module in the command prompt. The twitter ID of the first tweet is stored in a separate text file.

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.17134.1304]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\SWETHA\Desktop\twbot>python bot.py

C:\Users\SWETHA\Desktop\twbot>python bot.py
Status Updated!

C:\Users\SWETHA\Desktop\twbot>
```

**Fig 6: Status updated output**

This cycle keeps going on until the running of the program is interrupted.

Now the ID of the second tweet is stored in place of the first tweet's ID

When the bot has successfully replied to a particular tweet or has updated the user's status, the user can trace its working in the command prompt.

When the bot has replied to the first tweet, the ID gets automatically updated when the second tweet arrives like shown in the above image.



**Fig 7: Second tweet from the bot**

In order to actively monitor the tweets that contain certain keywords, the bot utilizes the antecedently introduced Tweepy stream. For each tweet, it will change the tweet as liked and then re-tweet it, when the user is not the tweet author.

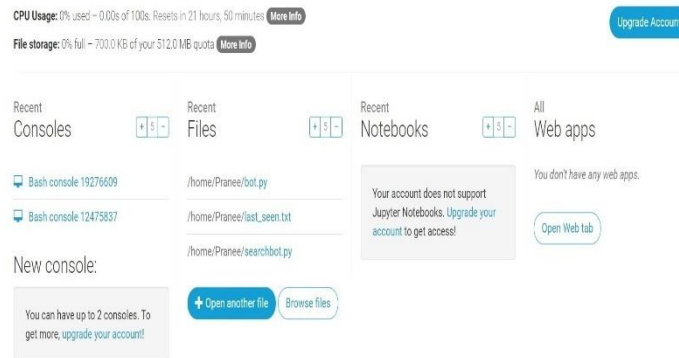
This bot can be used to feed the user's account using content which is applicable to the user's interests.

When the hashtag search module is initiated, the bot searches for the hashtag generated by the user, automatically and thus helps in spreading the same faster.

#### **d) DEPLOYING BOT IN PYTHON ANYWHERE**

PythonAnywhere is a web hosting service and an online integrated development environment based on the programming language of Python. It is used to provides in-browser access to Python which is server-based and the interfaces of the Bash command-line, with a code editor having syntax highlighting. The bot is deployed in this platform to ensure that the bot is active throughout the day.

## Building Social Bot with Python and Tweepy



**Fig 8: Deploying in PythonAnywhere**

### RESULT

The bot successfully re-tweets, likes and comments automatically on its own without any human interaction. The tweets containing the hashtags mentioned by the users are re-tweeted.



**Fig 9: Result**

### CONCLUSION

Thus the twitter bot is built using tweepy which enables much secure and faster sharing of cardinal information without human interaction.

### REFERENCES

- [1] [https://scholar.google.com/scholar?hl=en&as\\_sdt=0%2C5&q=Customizable+Twitter+Bots+Improved+QoS+in+Product+Marketing&btnG=](https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Customizable+Twitter+Bots+Improved+QoS+in+Product+Marketing&btnG=)
- [2] [https://scholar.google.com/scholar?hl=en&as\\_sdt=0%2C5&q=Evidence+of+complex+contagion+of+information+in+social+media%3A+An+experiment+using+Twitter+bots&btnG=](https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Evidence+of+complex+contagion+of+information+in+social+media%3A+An+experiment+using+Twitter+bots&btnG=)
- [3] <https://ieeexplore.ieee.org/abstract/document/9122703>
- [4] <https://dl.acm.org/doi/abs/10.1145/3041021.3054255>
- [5] [http://www.casos.cs.cmu.edu/publications/papers/LB\\_5.pdf](http://www.casos.cs.cmu.edu/publications/papers/LB_5.pdf)
- [6] [https://link.springer.com/chapter/10.1007/978-3-319-47874-6\\_2](https://link.springer.com/chapter/10.1007/978-3-319-47874-6_2)
- [7] <https://asistdl.onlinelibrary.wiley.com/doi/abs/10.1002/asi.23456#:~:text=Our%20results%20show%20that%20automated,in%20research%20evaluation%20and%20assessment.>
- [8] <https://regmedia.co.uk/2016/10/19/data-memo-first-presidential-debate.pdf>

- [9] Alperin, J.P. 2015. Moving beyond counts: A method for surveying Twitter users. *Altmetrics15 Workshop*(Amsterdam, Netherlands, Oct. 2015).
- [10] Alperin, Juan Pablo 2015. The public impact of Latin America's approach to open access. Stanford University.
- [11] de Bekker-Grob, E.W. et al. 2015. Sample Size Requirements for Discrete-Choice Experiments in Healthcare: a Practical Guide. *The Patient*. 8, 5 (2015), 373–384.
- [12] Clark, M.D. et al. 2014. Discrete choice experiments in health economics: a review of the literature. *Pharmacoeconomics*.
- [13] Couper, M.P. 2008. *Designing effective Web surveys*. Cambridge University Press.
- [14] Couper, M.P. 2000. Review: Web Surveys: A Review of Issues and Approaches. *Public Opinion Quarterly*. 64, 4 (Feb.2000), 464–494.
- [15] Couper, M.P. 2001. The promises and perils of web surveys. *The challenge of the Internet*. 35, (2001), 56.
- [16] Couper, M.P. and Miller, P.V. 2008. *Web Survey Methods Introduction*. *Public Opinion Quarterly*. 72, 5 (Dec. 2008), 831–835.
- [17] Courtois, C. et al. 2010. Teenage Uploaders on YouTube: Networked Public Expectancies, Online Feedback Preference, and Received On-Platform Feedback. *Cyberpsychology, Behavior, and Social Networking*. 14, 5 (Nov. 2010), 315–322.
- [18] Courtois, C. and Mechant, P. 2014. An Evaluation of the Potential of Web 2.0 APIs for Social Research. *Audience research methodologies: between innovation and consolidation*. G. Patriarche et al., eds. Routledge. 212–224.
- [19] Das, M. et al. 2011. *Social and behavioral research and the internet: advances in applied methods and research strategies*. Routledge.
- [20] Evans, J.R. and Mathur, A. 2005. The value of online surveys. *Internet Research*. 15, 2 (Apr. 2005), 195–219.
- [21] Hainmueller, J. et al. 2014. Causal Inference in Conjoint Analysis: Understanding Multidimensional Choices via Stated Preference Experiments. *Political Analysis*. 22, 1 (Jan. 2014), 1–30.
- [22] Liu, M. et al. 2015. Impact of Web Survey Invitation Design on Survey Participation, Respondents, and Survey Responses. *Social Science Computer Review*. (Sep. 2015), 894439315605606.
- [23] Manfreda, K.L. et al. 2008. Web surveys versus other survey modes. *International Journal of Market Research*. 50, 1 (Jan. 2008), 79–104.
- [24] Pedersen, M.J. and Nielsen, C.V. 2016. Improving Survey Response Rates in Online Panels Effects of Low-Cost Incentives and Cost-Free Text Appeal Interventions. *Social Science Computer Review*. 34, 2 (Apr. 2016)