**RESTful: RESTful Web Services Composition & Performance**

**Evaluation with Different Databases, Neha Singhal, Usha Sakthivel, Pethuru Raj, 2017, IEEE**

REST stands for Representational State Transfer which is a software architectural style that defines a set of constraints to be used for creating Web services. Any web service that complies with the REST architectural style is called a RESTful Web service and this provides interoperability between computer systems on the internet. REST is a lightweight replica to mechanisms like Remote Procedure Call (RPC), etc. RESTful APIs can be used for service composition, a popular mechanism to coordinate various and distributed services to produce composite services. The paper deals with testing of the various composite services provided by RESTful APIs and their performance in accordance to the assorted databases available. RESTful services give the service representation for each of the resources in our everyday environments. Not only software applications, packages, and libraries, but also all kinds of other commonly found and used elements such as our handhelds, wearables, implantables, consumer electronics, equipment, machines, etc. can be visualized as resources and presented as RESTful services. The service composition happens in two ways: static and dynamic. There can be sequential as well as parallel service compositions. The static composition primarily gets accomplished manually. That is, the services to be composed have to be identified and the composition takes place.

The method in which the RESTful APIs are to be implemented in the design is such that the user is able to understand exactly how an ATM transaction occurs in real life with Fingerprint Authentication as a verification method, as an alternate to the generic PIN that users already utilize. The RESTful APIs will help in integrating the system onto a web-based application which uses the following languages: HTML, CSS, JavaScript, Node.js, Express.js and MongoDB as the database in which all the information of the user is stored. The APIs will help in creating a viable website in which the transaction of a user can be viewed and the authentication process is also done. RESTful APIs in this project are mainly used to represent exactly how the transaction would look like as majority of ATM transactions are done in the backend and the end user doesn’t see any of the authentication process.

**Adafruit: IoT Based Urban Climate Monitoring using Raspberry Pi, Rohini Shete, Sushma Agarwal, 2016, IEEE**

The Adafruit library is a library that can be used for fingerprint sensing in an Arduino board or a fingerprint scanner. It can be used in various ways like pressure sensing, weather monitoring sensing and so on and that is what the paper discusses. The method in which the Adafruit library is used in the paper is related to an IoT aspect of climate monitoring using a Raspberry pi and the method that we plan to implement the Adafruit library is through a fingerprint scanner for our ATM transaction system which uses Cyber Security for its authentication for the transaction. Even though the implementation of the Adafruit library differs on the two projects but the methodology in which the library is implemented is more or less similar in nature.

The paper discussed developing an IoT system that will allow the quality of life to the people to increase by providing a clean and sustainable environment. The authors discuss about the various components that will be used in their system and the various architectures that will be used to implement such a system. In the paper, the authors have decided to use the Adafruit library as a means to allow client-server communication, which is exactly how we plan to utilize the library but here, in the paper, the authors have used it to publish output to the whichever user has subscribed to it. The authors offer a simple, low cost, low power consumption to a problem involving the environment and we plan to implement the exact same concept but in terms of a fingerprint scanner and the authentication it can provide to the user while he or she accomplishes a transaction on their account.

Even though the authors of the paper have used the Adafruit library for a different purpose, the concept involved is the same, where we allow for client and server communication by allowing the user to utilize his or her fingerprint to notify the server that the user belonging to that account is conducting a transaction and the server can authenticate whether or not the user in the terminal is the same user in the database via the user’s fingerprint. This allows for a more secure system of transacting in a bank’s ATM.