

Data Device Dashboard Design

Arnav Nevrekar¹, Sali Bhattacharjee², Pritam Suryawanshi³, Jayesh Nage⁴, Mrs. Alka Khade⁵

^{1,2,3,4}B.E, Dept. of Computer Engineering, Terna Engineering College, Maharashtra, India

⁵Professor, Dept. of Computer Engineering, Terna Engineering College, Maharashtra, India

Abstract - Data visualization is the graphical display of the abstract information obtained from devices for sense making (also called as data analysis) and communication. We will setup and create web application to visualize device data and view trends and stats of device fields across days. The industries are looking for ways to analyze the use of data devices, and would better understand the usage of devices.

Important stories live in our data and data visualizations is a powerful means to discover and understand these stories, and then to present them to others. This dashboard will take data from cloud and will be further used for visualization. This information is abstract in that it describes things that are not physical. Statistical information is abstract. Whether it concerns sales, energy consumption, population ratio, parameters like temperature, humidity, pressure, performance, or anything else, even though it doesn't pertain to the physical world, we can still display it visually, but to do this we must find way to give form to that which has none. This translation of abstract into physical attributes of vision (length, position, shape, and color to name a few) In other words, to visualize data effectively, we must follow design principles that are derived from an understanding of human perception.

Key Words: Data Visualization, Cloud, Analyse, Dashboard, Firebase, Graphs.

1. INTRODUCTION

Data Device Dashboard Design the name itself says that the data is been represented or visualized in certain formats in order to make device data look interesting and easy to understand. In today's day to day life many industries use such dashboards for various scenarios. The user can simply enter its device id into the search box option mentioned in dashboard and identify its device data by selecting different widgets which will be displayed on the dashboard. Widgets can be easily displayed on the screen of dashboard by clicking on it or simply dragging it on the screen. In this project we are going to represent the fetched data from the cloud on the device dashboard in graphical format. Basically graphical representation such as bar graphs, line graphs, charts, gauges, helps us to understand the device features in a much more easy way. The number of data visualization is increasing in today's industries and helpful in day to day life. Hence this project might help the end users to understand the use of device data and may bring ease in its work. Firebase cloud platform is being used to collect data and store them in the repository so they can be accessed later.

Firebase services enables you to easily and securely connect and manage billions of devices. You can gather data from, run sophisticated analytics on, and take actions in real-time on your diverse fleet of data devices from edge to the cloud. In our project Firebase plays a very significant role in processing the data and managing the cloud service with the help of certain components which are being mentioned throughout the paper.

2. LITERATURE SURVEY

As [1][2], we had done many survey based on various dashboard visualizations and testing on Bolt Cloud chip which contains hardware based WiFi module and direct internet access. As per our observation throughout the process we have faced very difficulties in accessing and performing such representation on and managing such data becomes very complexed. This deals with the various risks with the dashboard representation.

In [4][5]. A case study based on analysis of data as well as data visualization, where user has to show its own hardware device or IoT device for its data visualization. This scenario leads to the increased cost of hardware products and operating such devices becomes a very tedious task and later on fetching the data through cloud. But here user is generating a dynamic data visualization by just entering device id on dashboard, which makes easy to understand and operate. Hardware cost would be dwindled. These challenges improves compliance, reduced cost, organizational communication and customer satisfaction. As a result such dashboards are perceived in terms of how they are able to benefit companies by realizing efficiency and profitability.

In [6][7]. For data visualization and data fetching process is eradicated in some dashboards itself, they have to enlist such data in another web browser to check and confirm the accurate data fetched from the device. Since the dashboard we are mentioning can manifest the fetched data for long period of time in dashboard itself which helps you save the time. Every data visualized graph or any widget is specified with Inspect option to verify the fetched data of particular device. The increasing competence in the market is an important factor that drives the adoption of new technologies and innovations, as companies search for new opportunities to cut costs by improving process efficiency or by developing new ideas. There is an increasing effort to develop and implement good software. Currently, such software is used for fetching device data as well as randomly generated data from the server and unveil it with various graphs or widgets

for better clarification in future use. Use of canvas html helps to bitmap with immediate mode graphic application and drawing on the web page. Canvas has several strategies when it comes to drawing paths, boxes, circles, text and adding images. Much better than the htm5 and CSS. Thus improves scheduling, operating efficiently and management.

3. OBJECTIVE

- Our main objective is to maintain the data of the fetched data from the server which will be stored in the firebase which is no sql database and can be accessed according to the need.
- Second main objective is to provide customer satisfaction by providing them a option to enter up their device id respectively.
- Effective management of device dashboard as per the optimized access of the stakeholders with simple drag and drop facility for better and efficient use of dashboard.
- To store and provide easy graphical representation on the dashboard including inspection facility for the fetched data through server.

4. EXISTING SYSTEM

According to the survey we have found some existing system such as Weka and Fitbit Data visualization system which is not efficient for the customers and has high cost for representation as well as inspection of data, which leads to customers displeasure. Therefore such systems does not support growth to the technology.

5. PROPOSED SYSTEM

In proposed system, we are going to eliminate the drawbacks of the existing system and thus provide the better user interface. In this system, we are implementing a dashboard for data visualization of the fetched data from the server. The user will login in into the database, if it is not then he/she can register itself. User is then retransmitted to the dashboard page where user can enter up its device id, after that options will be displayed listing certain graphical representation formats (ways) for example scale graph, histogram, line graph etc. user can easily drag and drop it on the dashboard screen to view its fetched data in the graphical format making it better to understand. Later on a table is formed letting user to know its data in tabular format. Finally, user can also inspect its data with a simple right click on the visualized graphical data. Such system makes it easy for any user to access the dashboard and view its data respectively. The fetched data can be stored in the no sql platform namely as Firebase. The data is maintained efficiently and stored in the firebase. Thus the improved scalability as well as reliability leads to perfect user satisfaction.

6. IMPLEMENTATION

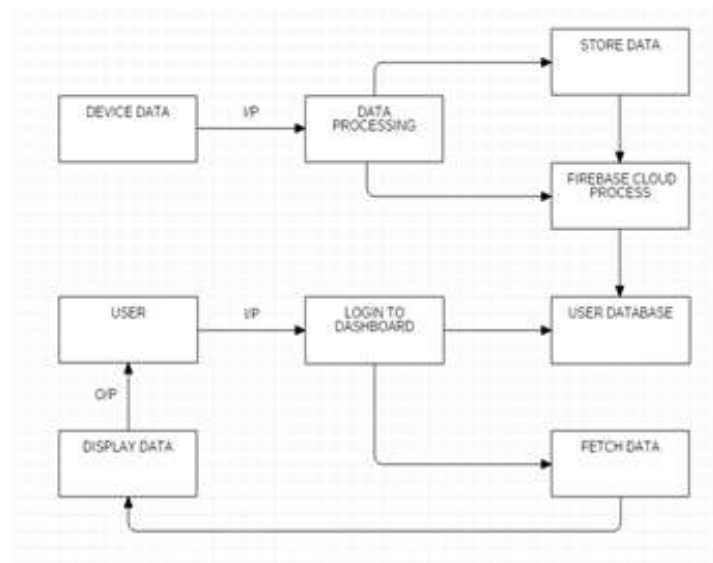


Fig -1: Data Flow Diagram

As we can see in the fig.1 represents data flow diagram based on the complete working of the system. User can simply register and login in to the dashboard, later on it can enter its device id in order to views its visualization. As soon as the user enter device id immediately the available widgets for certain device are exposed on the screen. Hence user can merely drag those widgets on to the screen and get its visualization done quickly. The admin can also view its fetched data by inspecting the widget.

6.1 FIREBASE

We use a web service to achieve our present system. Firebase is really the mobile and web online application major platform. Firebase is a NoSQL database that utilizes sockets, causing the customer to receive live information without having to authorize GET from the server. All of this requires too that you subscribe to the registry / collection when you actually set up things. This totally depends on the technologies you want to use in all your other stack in terms of how you would use it in an implementation. The verification on the firebase system tells you how to do this. Firebase affords the user with three primary programs. They are datasets in real time, decryption and variable going to host.

6.2 CANVAS HTML

The component HTML < canvas > is used to draw textures just using JavaScript on the fly. The canvas component is really a GPU compartment. You must actually draw the graphics just using JavaScript. Canvas has multiple methods to draw routes, boxes, circles, text and images. The Canvas component [7] is actually part of HTML5 and encourages the resourcefulness and script-ability of 2D aspects and raster images. JavaScript code can free access the area via a

complete set of drawing key functions similar to other common anymore 2D APIs, which also dynamically enhance the current generation of graphics. Some of the canvas' predicted uses include special effects, animations, games and composition of images and videos. Looking ahead to the use of canvas [1][2] but why not just SVG? Is the real question most asked several times. This is the particular reason for it! SVG is an way earlier standard for web browser inking forms. Unlike the raster-focused canvas, though, SVG is vector-based, so that each drawn sort is remembered as an object in a dynamic array or document object model, which can then be deemed to a raster image. On the other hand at least, the canvas is drawn promptly. Many other JavaScript libraries add scene-graph technological capabilities to the element of the canvas. A sculpture can also be stenciled in layers and then specific layers can be reconstructed.

7. APPLICATIONS

- a. In just a few seconds, the Data Visualization implementation allows you to potentially create informative data widgets / graphs.
- b. It causes users to share data with simple drag-and-drop talents.
- c. Create and personalize customizable dashboards with a simple click.
- d. The tool causes intuitive institution and analysis of information.
- e. It allows users to share renderings of data with anyone.
- f. Immersive data visualizations can be created to understand data, ask business questions and soon find explanations.
- g. User and admin should check the android apps on the dashboard and receive few data.

8. CONCLUSION

If you have a normal data visualization web page, you understand how hard it is to manage and accomplish optimum customer satisfaction. In part thanks, there may be a list of challenges, including totally inadequate data representation or limited charts and graphs, many spreadsheets will not include calculations, so we still have many more extremely interesting widgets that could really make your task easier. However, it is very difficult to resolve the levels of understanding of certain employees or users to perform their IoT device data recognition operations and without the windshield and its unnerving functionalities.

9. ACKNOWLEDGEMENT

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