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Human-Computer Interaction Report
(Topic: Interactive Enhancement In WhatsApp Web)

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Abstract: The main aim of this study is on improving the UI and functionality of the Web WhatsApp. We're working on WhatsApp Web's status feature. WhatsApp is the most widely used mobile communication app. Furthermore, WhatsApp on the web is a widely used tool that enables you to use the WhatsApp Application and chat on your computer through synch with the mobile app. The primary problem is that the status viewed by contacts is not accessible on Web WhatsApp, excluding the number of contacts who viewed the status. In this proposed change, the interaction is quite straightforward and sensible, where the user clicks on the eye icon and a little frame pops with the names of contacts and the time when they saw the status. In the top right corner of that small frame, there will be a delete and a share button, one for each status. This would be identical to the Android WhatsApp app's actions and interpretation. Because we're working on an issue with the UI and functioning of WhatsApp Web statuses, our challenge is very tied closely to Human Computer Interaction. While this platform can function in web browsers, the main source of contact will be through Desktops and laptops. The responses for our WhatsApp Web statuses research will appear after the A/B testing or deployment process. We'll see how the public reacts to the modifications we've proposed as in WhatsApp Web. On desktop computers, users will find it easier to modify their status, see the views, delete, and share their status. Anyway, this research project would help to eliminate the constraints of Web WhatsApp and provide the same functionality as that in the mobile application.

Keywords: WhatsApp Web Interaction, WhatsApp Web, WhatsApp Status, Status Information, Viewed Status, Status Interface Enhancement,

1. <u>Introduction</u>

1.1 <u>Defining Problem Statement In HCI Scope:</u>

The core problem is that the status viewed by contacts is not accessible on Web WhatsApp, except for the number of contacts who viewed the status. According to the HCI scope, certain flaws in the WhatsApp mobile app have been detected. Users are familiar with the ability to remove, share, and see the contact info of someone

who has saw the status. The goal of this study is to find a way to compensate for the lack of these characteristics.
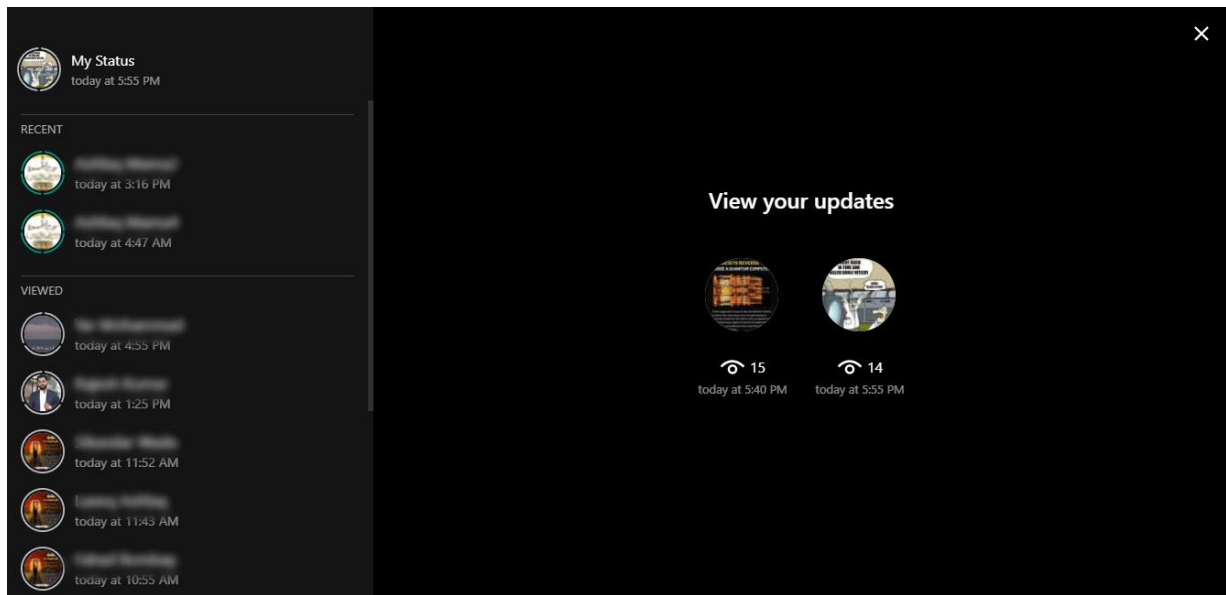
Figure 1. WhatsApp status panel image

1.2 Background Study Of Research:

WhatsApp is by far the most widely adopted smartphone communication app. It is an app that lets users to talk, make audio and video calls, and update their status, but it now also offers a desktop version. Furthermore, WhatsApp on the web is a powerful tool that enables you to use the WhatsApp chat on your computer through synch with the mobile application. Users simply scans the QR code that appears when they open the WhatsApp Web to connect via synched WhatsApp Mobile App.

1.3 Aims & Objectives of the study & its background

The main objective of this study is on improving the UI and operation of the Web WhatsApp. We're concentrating on WhatsApp Web's status component. The goal is to include a Status Views Tab for each of the uploaded statuses. It should also make sharing and deleting statuses possible from the same tab. This would be similar to the Android WhatsApp app's operations and interpretation. It adheres to the User-Centered Design approach, with comprehensive A/B testing to ensure that users accept the modifications to the WhatsApp web.

1.4 <u>Scope and Limitations:</u>

Since the WhatsApp app is adopted all across the world, it's only natural that the WhatsApp Web has a global user base. The scale of our issue includes all WhatsApp online users around the world. Normally, research has constraints, however here we are focusing on improving functions and there are none of the limitations. Anyway, this research project would help to eliminate the constraints of Web WhatsApp and provide the same functionality as that in the mobile application.

2. <u>Literature Review</u>

The challenge we worked upon is improving the UI design and performance of the WhatsApp Web interface and accessibility. As we have seen previously, no such initiative was taken. However, the work done on the WhatsApp interface's HCI is focused on the app's usefulness in terms of online activity and the impact it has on people's lives. Even though we're working on an issue with both the UI and operation of WhatsApp Web statuses, our challenge is very closely tied to Human Computer Interaction. Since we need to add certain design elements, the challenge persists over the HCI principles.

3. <u>Design and Methodologies</u>

3.A <u>Design Principles And Justification</u>

### i. <u>Familiarities with similar design/devices:</u>

While we know that the WhatsApp website operates in a similar way to the WhatsApp mobile app, there is a lot of overlap between the two interfaces. Our issue is with the WhatsApp online status section, which we want to work the same way as it does in the WhatsApp mobile app. As a result, we'll require a recognizable design.

ii. <u>Affordances</u>

Another aspect of this issue is design affordance. There will be both real-world and perceived affordances for our WhatsApp online status and UI modification. The real-world affordance in our problem relates to the change in the actual UI of the WhatsApp site in the status concern, but the observed compatibility refers to the User Experience. It would be reliant on how our users absorb our design, and using different testing approaches prior to deploying our innovations might assist us understand how our users absorb the design and react based on their experiences.

iii. <u>GUI Affordances</u>

The GUI affordance highlights the user interface of the WhatsApp online status tab in our targeted problem. Here, we'll need to add some new functionalities, which will need an increase in the GUI's features. We need to display each of the statuses that the user has added to his profile, as well as the number of status spectators. When we click on each of the status total views, a little window will appear, displaying a list of the spectators. Furthermore, on the top-right corner of this little box, there would be two options for deleting that particular status and sharing it with anybody in your contacts. Here's the GUI affordance we spoke about before:
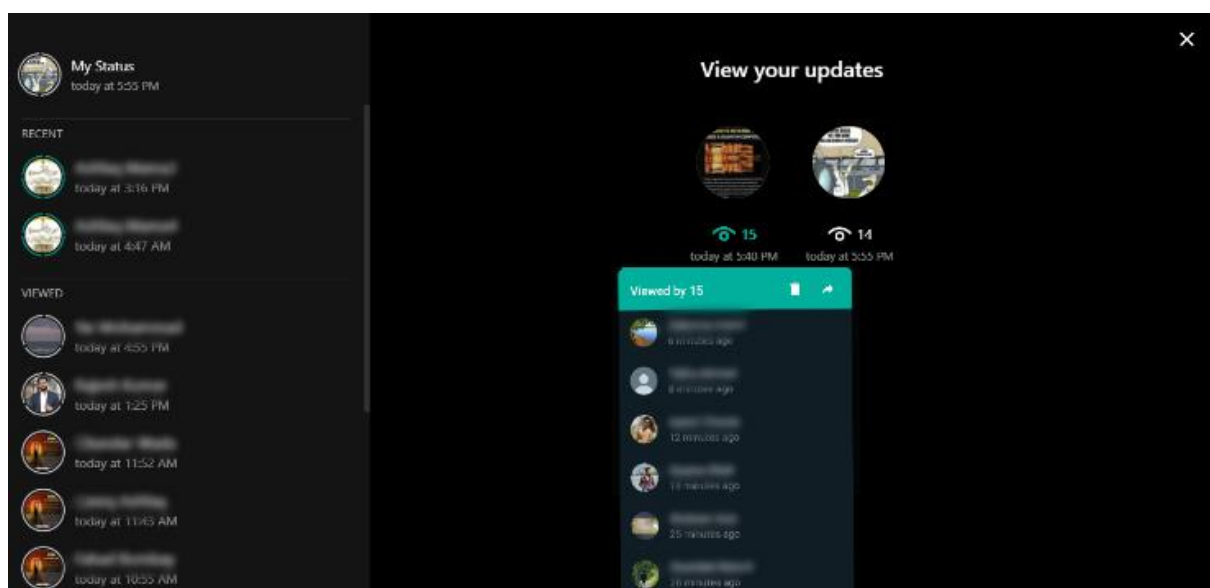
<u>Figure 2.</u> 15 viewers of Status 1
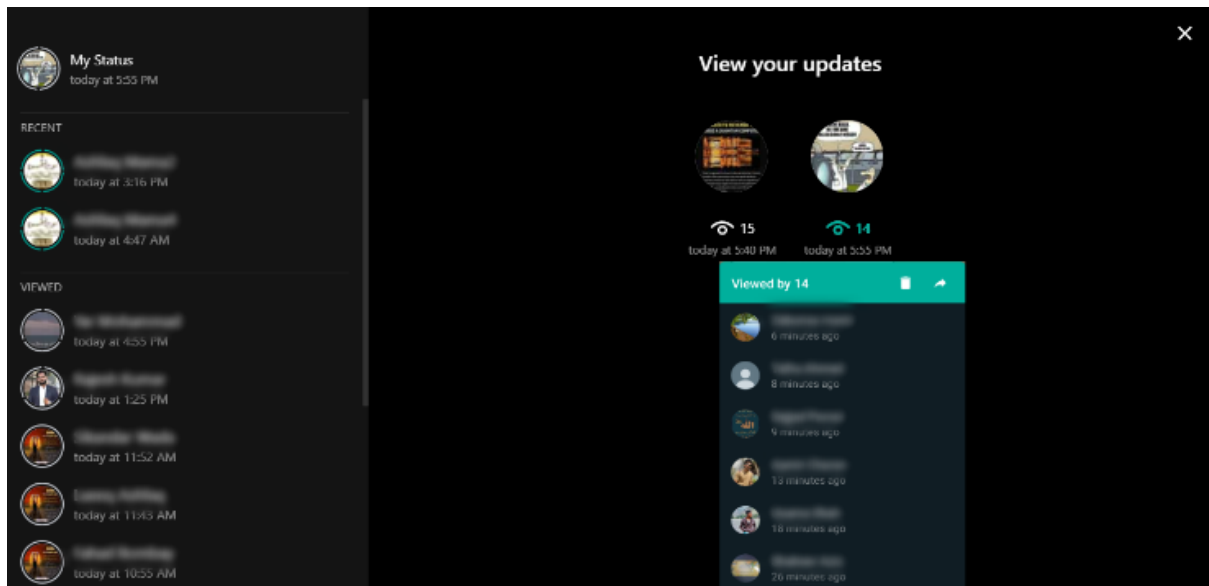
Figure 3. 14 viewers of Status 2

iv. Labels

The labels include what we click on to accomplish an action. There are several labels in our suggested changes as well. We could click on these view counts to see the status viewers since we have a status window that shows individual statuses and their view counts. As a result, it therefore is our very first label. Moreover, there are two distinct labels on the status watchers list pane (a bin, and an arrow). They relate to the statuses being deleted and shared, appropriately.

v. Mappings

The notion of mapping exists everywhere labels and design exist. The term "mapping" refers to the process of determining where the icons and labels for a GUI affordance should display. We've already spoken about labels and icons in our suggested problem. We may also click on any of the statuses we've posted. As a result, it's recommended that you utilise the right-hand side of the WhatsApp browser window for mappings. All of the statuses will be displayed in a left-to-right order, with the number of viewers listed underneath each one. When you click on the count, a tiny window will appear beneath that status, with a scroll bar on the side to show all of the viewers. Additionally, the delete and share icons should be mapped to the upper

right corner of the viewer's tiny window. This was all about mapping our idea's labels and icons.

vi. <u>Instructions</u>

For the end-user to embrace the design modifications, instructions are required. The directions themselves are depicted in the modified features that we have put forward. When we see the icon of a bin, for example, it simply means that a file or a portion of data has been deleted. As a result, these commands are dependent on the GUI affordance on which we are focusing. The views count of statuses would, however, be affected by instruction. When a user clicks on the count, he will be informed of the number of viewers who will appear. In addition to all of this, we can create a brief guide to inform our end-users on the progress of the deployment and testing phases.

vii. <u>Constraints</u>

There are four sorts of design restrictions on which we will concentrate our efforts in our challenge. The budget for our design is the physical restriction in our suggested design. Since the online interface of the well-known programme will be altered, the developer of WhatsApp Web will have access to this deployment. The Facebook Company will be responsible for fulfilling this limitation. Semantic constraint may arise if we are just unable to regulate the operation of the additional feature; however, because our problem is an advancement or addition, semantic constraint is less likely to occur. Given that WhatsApp is a worldwide service used by people of many cultures, there is no exception that might jeopardise cultural values, according to our design. We know that there are simple logics to open a viewers window, delete the status, and share the status in our challenge, thus there is less probability of a logical constraint. Any human error, however, can cause this constraint to exist; otherwise, the notion and methods are free of it.

viii. Interacting with devices

We're currently addressing the issue with WhatsApp Web. Because it is a public chat platform, it is apparent that this website may be used by anybody anywhere in the globe. The WhatsApp Web operates on the Web Browser for interaction with many devices, as we well know. Chrome, Mozilla Firefox, Opera, and other web browsers are examples are interoperable to execute the WhatsApp Web. It is possible to say that a middleware, such as the web browser, is required for the system's interaction with the devices. Because this platform may function in web browsers, the device on which we are running WhatsApp Web will be the primary point of engagement. PCs and laptops are the primary devices that can access the WhatsApp Web interface via browsers. However, the quicker the connection, the better and more fluid the WhatsApp Web interface interaction will be.

ix. Casualties

Apparent and False Causalities are the two sorts of causalities. It refers to a terrible occurrence that occurs. There is no probability of causality since causality is a natural phenomena and we are here to address a technological problem. If the internet drops down when using We WhatsApp, this might result in an Invisible causality. Furthermore, there is no likelihood of any such causality.

x. Errors

There are two sorts of errors: slips and mistakes. The term "slip" refers to an occurrence that occurs unintentionally and unexpectedly. A mistake, on the other hand, is something that occurs as a result of deliberate activities. We perform acts or make judgments that cause a problem to arise, and as a result, a mistake happens. We have no such risk of making an error in our research study, but a mistake might arise

if the WhatsApp web developers do not understand our proposed model and make a mistake in the code.

xi.   Feedback

Feedback is an important part of determining how well our work performs in the marketplace. The feedback for our WhatsApp Web statuses research will arrive after the A/B testing or deployment procedure. We'll see how the public reacts to the improvements we've proposed in the WhatsApp Web. This section can also be referred to as our research's analysis. We will know whether the changes are valid for the final amendment after this process. We believe that the modifications we have recommended are legitimate, and we anticipate good reaction from users.

## 3.B   Mental modeling importance in the real world

Human thinking is referred to as mental modelling. In the context of HCI, it refers to how humans think about and interact with various technologies. What the user thinks about the design and how it interacts. It also represents the user requirements that the design must meet. In this study, mental modelling is used to simulate WhatsApp Web statuses. Because the public uses the WhatsApp Mobile Application regularly, they have a positive experience with the status section, where they can see their own statuses as well as the statuses of others. This feature will be added to WhatsApp Web so that users may use it on their PCs and laptops as well. Moreover, since the philosophy behind our design is quite similar to that of the WhatsApp Online application, and because users are acquainted with that interface, making modifications to the WhatsApp web interface in the status section should work flawlessly. We're getting there in terms of emulating the WhatsApp mobile app's UI such that it works well.

3.C   User-Centered Design

WhatsApp is a user-centered mobile application in which the user's choice is assessed for approval of any change, and we will do the same in our Idea. This will be double-checked to see if the status contacts can be seen on the online version of WhatsApp, as well as if they can be deleted and shared. The padding and design may appeal to the user, making it easier for him to manage his Status section. Is it truly working and dynamically performing the functions? The user-centered design refers to the User Experience to run WhatsApp online status part, which is now our stated concern. We have proposed a concept that satisfies all of the requirements that a user should encounter when utilizing the specified part. We've placed the "Your status here" tab at the top of the right frame, as per our design, and below that are all of the user's uploaded statuses. Each status, on the other hand, will have the ability to be shared or removed on its own.

3.D   Goal-Oriented Interaction Design

It features a goal-oriented design that allows the user to examine the state from top to bottom, with distinct buttons for deletion and sharing for each status. Another objective is to examine all of the statuses' perspectives. To investigate the viewers of status, the user will click on the eye symbol, which will toggle a tiny frame that will reveal the names of contacts and the time when they watched. A delete button and a share button will be included in that little frame, one for each status.
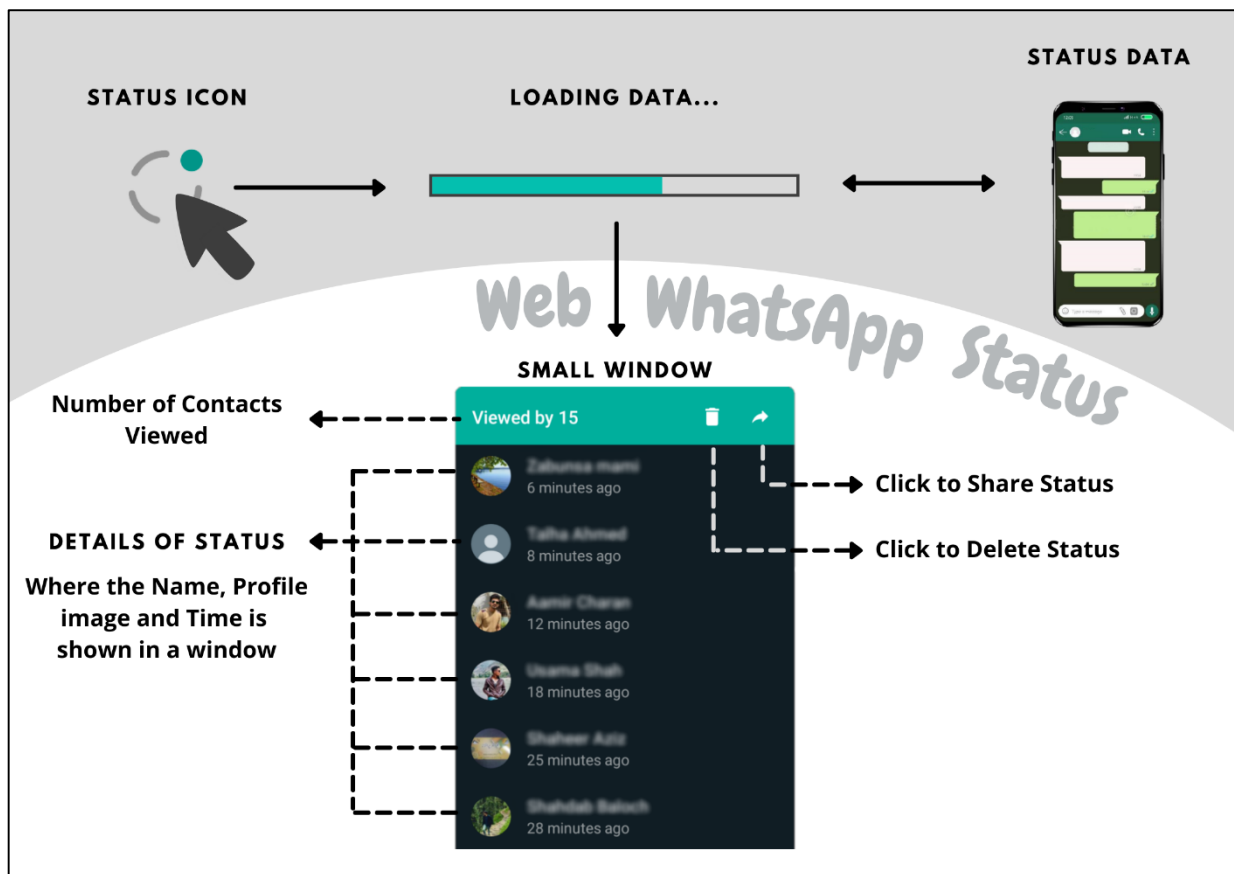
Figure 4. Working Flow

3.E   Goal-Oriented Interface Design

The main goal of the design regarding the interface is to show all of the statuses that we put in, the buttons that allow deletion and sharing, viewers of out statuses, window which displays these viewers, a scroll panel on the side of the small window, and dark theme color scheme. These goals shall be designed through the developing tools and coding languages of the web WhatsApp. Actually, our work is on amendment, so, there would be editing in the code for our goal oriented interface design.

3.F   Interaction Design versus Interface Design:

Interface design suggests an interface where all of the statuses that we put in, the buttons that allow deletion and sharing, viewers of out statuses, window which displays these viewers, a scroll panel on the side of the small window, and dark theme color scheme. Interaction design refers to the functionality of deleting, sharing and checking views. These functionalities will be loaded on clicking the status button of the home page, and each data will be fetched to display it as it is on mobile. Firstly the viewers of status will be feeded in small window. Secondly, delete button will remove the status from everywhere and last share button will share it the status which will be send via web WhatsApp.

3.G   Conceptual Model and Justification

The Conceptual Model is a small frame that is designed to display the contact and its time when he viewed the status and delete or share that status. Thus, this is already working in the mobile phone and people are well aware about its working but it is not functioning in the web based Whatsapp so that the user can keep his mobile phone connected at a side and use it totally on the web. It seems that users will perceive it that it will display the status of only one status but real concept is that each status will have its separate window which will appear on clicking the eye icon of that status; the eye icon will shine in the standard vivid cyan color of WhatsApp. The constraint is that window will only display the latest six viewers and to look other previous viewers the user would need to scroll it but still only six contacts at a time will be displayed. Justification of the words will be same as standard we see on mobile.
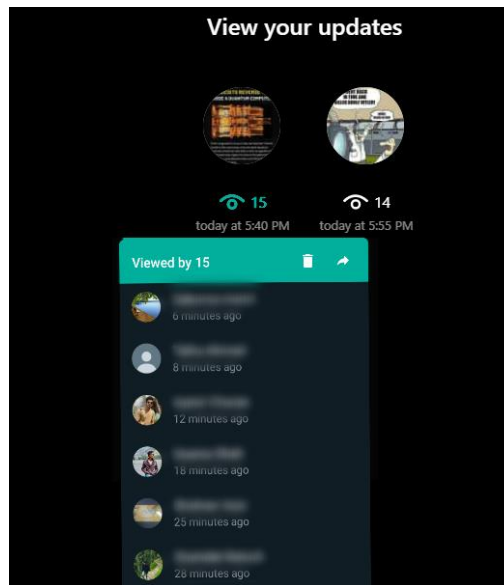
Figure 5. Conceptual model and justification

3.H   Usability Engineering model

The proper A/B testing shall be conducted to make sure that the users feel completeness and accuracy in the WhatsApp web. To find efficiency we shall take feedback is the process for checking how much our work runs sufficient in the market. For our research on WhatsApp Web statuses, the feedback shall come over after the A/B testing or deployment process. The users psyche will be judged as per their using behavior and then the Satisfaction will be declared until that we shall be keep working towards the positive attitude.

3.I   Six Usability Attributes

The design is complete with which users can easily delete and share status as well as can see the viewers. It is easy to learn as, it is same as the users have experienced in smartphone and even a novice user can understand it in the wink of an eye. The Status will be in ready-state on clicking the status icon, complete data will be fetched and available at the status panel. The reason of this report is the suggestion for ease of using functionalities of status system immediately for users. No Errors shall be seen accept if the Internet disconnection takes place from any of both devices

(Mobile or the Desktop). A popup message shall be interrupted to ask user either he appreciates this feature on web WhatsApp "Yes" or "No". Either Funnel test can be conducted to find at which point the user is not satisfied.

3.J   Design dimensions

Something which is inappropriate, is the lack of status information, delete and share function, which we have introduced. These are the useful tools for a user to check the information while working on a PC or a laptop where the user would not need to touch his phone again and again to check the update. It is usable for one to have these features on a single device where he can see and manage his status. This feature is simply adopted from its mobile app feature. Developing it appropriately would might be challenging but it is still a positive approach.

4. Analysis and Discussions

i.   Usability Evaluation

A. Exploratory Evaluation

These goals shall be designed through the developing tools and coding languages of the web WhatsApp. Whatsapp is a worldwide platform with which millions of people are familiar, whereas we suggesting an enhancement for the users of WhatsApp so it will not be challenging for any user as we will be using the same color scheme, design and font style as it is in a WhatsApp mobile app.

B. Predictive Evaluation

The Implementation will take place wisely where the currently center text "View your Updates" will be replaced to the top center, bellow which all statuses will be visible in circles with equal distance as a grid view, where to explore the viewers of status the user will click on the eye icon and a small frame will appear which will

show the names of contacts and time when they viewed. That small frame will also include a delete button as well as share button; separately for each status.

C. <u>**Formative Evaluation**</u>

The pre-developed web-WhatsApp status panel has something lackness which can be fulfilled with the idea discussed. This work for the enhancement is to satisfy and gain customers' response.

D. <u>**Summative Evaluation**</u>

After finishing the implementation of enhancement in web WhatsApp status. The system can be freely tested to make sure it works well. Either we can compare it with the sample functionalities running on mobile app. The proper A/B testing shall be conducted to make sure that the users feel completeness and accuracy in the WhatsApp web. Once, the performance becomes optimal, the product or software that we are up to develop creates its identity across the globe.

5. <u>Usability Evaluation Methods</u>

The beginning inspection can be made within the developers and working team to check the performance. After the successful output from the enhanced status panel we can perform A/B testing where user's choice will be judged for approval of any further improvement or relegation.

6. The Usability Engineering Lifecycle

a) Know the User

Knowing the user is as essential as the development of any newest technology. It enhances the analytical process of our product development as in the end, it has to be utilized by end-users. Keep in mind, there would be a chance of high level diversity while analyzing users. It would really depend on what is your criteria of development and for which segment of users you are developing a product. You should take out insights about the user's experiences, their level of thinking, their ability to grasp new things, their education background, their cultural traditions and their interaction with similar products. Now for our WhatsApp Web feature enhancement, we have frequent users who work with PCs and laptops. More often, they are the office workers and students. So knowing their experience with WhatsApp Web and getting their opinions about the changes can be the great pathway towards the success of our idea.

b) Usability Benchmarking

The next crucial step is to carry out Usability benchmarking. One of the most critical part of any development life-cycle is the Usability Benchmarking. This helps in creating such a framework which could help in future development of the product or software. Usability Benchmark focuses more on the motive of the software product. We can consider it to be a verbal protocol as it allows the developing team to ponder over the user's thinking and their interactive behavior. It also related to the study of psychology of the users. Due to carrying out a perfect usability benchmarking, it will make us deploy our methodology in a suitable and relevant way, thus making our approach to be stronger and the final software product to groom. Furthermore, if we see, the Usability Benchmarking follows some goals about how to make things better. The usability goals that we set can help us find how our own

performance is going on over the project. The more we reach goals, the better shall be the performance. Once, the performance becomes optimal, the product or software that we are up to develop creates its identity across the globe. In our piece of research on Web WhatsApp, we are up to amend some features related to the status tab. Now, we also have some goals about our design and performance which are all clearly defined before in this whole report. So there is no need to define them anymore here. These goals act as our Usability Benchmarks and once, we know how our users shall react on the new amendments, it would be more sufficient for us to make things better.

c) <u>Goal-Oriented Interaction Design</u>

It has completely goal-oriented design where the user can view the status from top to bottom where each Status will be having separate button for deletion and sharing the status. Another goal is to check the views of all the statuses. The interaction is very simple and logical where to explore the viewers of status the user will click on the eye icon and a small frame will appear which will show the names of contacts and time when they viewed. That small frame will also include a delete button as well as share button; separately for each status.

d) <u>Iterative Design</u>

Iterative Design has a concept of checking and analyzing the software repeatedly. This helps in reducing the chances of errors and mistakes that might disturb the flow of our software process. This aids in attaining our design goals. In addition, iterative design also enables improvement and enhancement of our developed design by time. In our project, WhatsApp Web has been updated as its status tab would get viewers option, plus deletion and sharing of statuses. Now if we consider iterative design, this could be more enhanced in the future. Again we will have to generate unique idea and carry out multiple design rules, fulfill design criteria, conduct Usability benchmarking, A/B testing and finally going towards the

implementation phase. Iterative design can help in the future work for design advancement in WhatsApp Web.

e) <u>Follow-up Studies</u>

We can analyze the user's complains through Contact us panel, where user can easily mention the problem he is facing regarding; design; accessing point or anything where a bug appears can be discussed with the WhatsApp for web. Facebook is a great platform from where we can scrap the data regarding web WhatsApp to analyze what people are saying in the newsgroups.
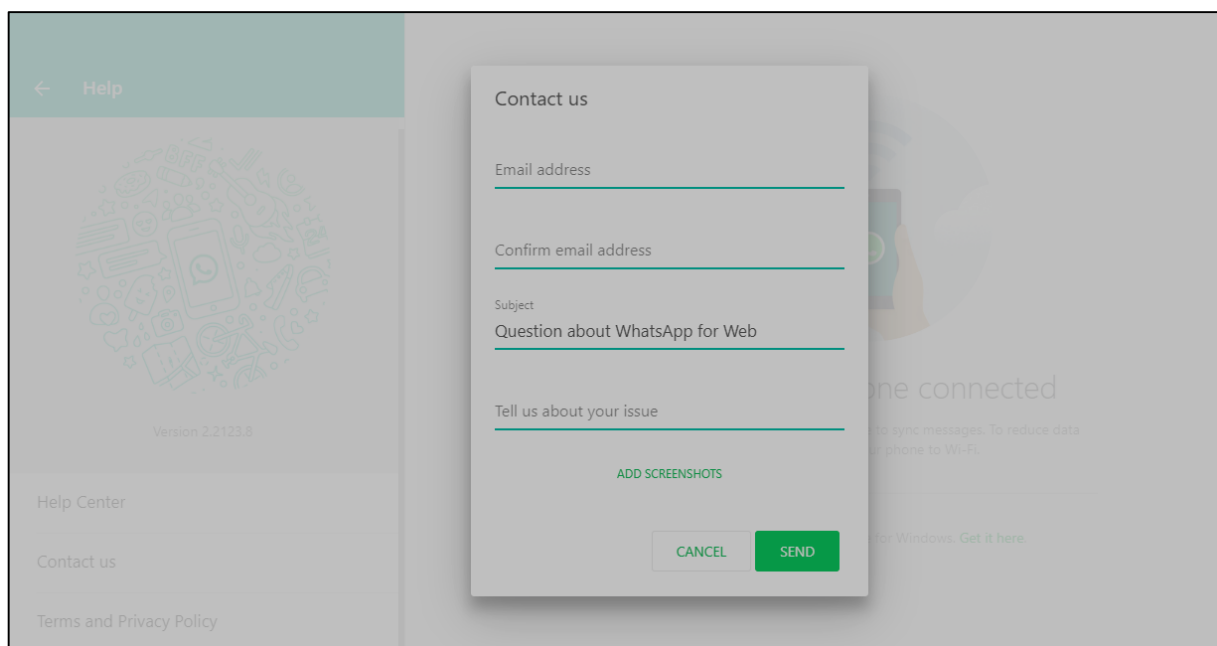
Figure 6. Help panel to gather follow-up studies

7. <u>Conclusions & Future Directives</u>

In Conclusion, the users will find it more convenient to manage their status and see the views on the desktop. Another drawback is that if status is well-intentioned and you need to share it with somebody to must watch it you can share it with him instantly while working on Desktop PC or laptop. For future work we can also place add status button in the status section. Perhaps, this research paper leads to erase the

limitations from the web-WhatsApp and complete the usability as a mobile app provides.