

System Design

4.4 System Design:

4.4.1 Software application design

The work of the system aims to monitor water elements in order to preserve human health, by integrating a mobile application with a web page, so that the mobile application displays the percentages of water elements through a chart, determines the water quality, and informs the customer about any water problems or the rise of one of its elements, and works Location on a map to show the locations of our equipment and monitor the water quality in those places to increase the quality of our service. It also acts as a commercial website to display our equipment for purchases.

4.4.2 Software application development

Programming, testing, and/or implementation of the business requirements stated in the Software Application Design phase is all part of Software Application Development. The Approval to proceed with development as granted by the customer is the first step in this service. When developing a web and mobile application, web and mobile application design are crucial. that emphasizes on the web and mobile application's appearance and feel. The design stage includes user interface design (UI), usability (UX), content generation, and graphic design, among other things. We Focused on UI and UX design in this article. Design, usability, and creativity are used to select the best application.

4.4.3 UI in Web and mobile application

The term "user interface" refers to the way a computer interacts with the outside world. The user an interface (UI) is the part of a web and mobile application that a user interacts with. It's all you see and Touch, including buttons, colors, typefaces, navigation, etc.

4.4.4 UX in Web and mobile application

the term "UX" stands for "User Experience." The user experience (UX) focuses on how people feel about an application and how they interact with it. Was the online application difficult to use, slow, or disappointing to the user? When assessing web and mobile application, a UX designer will focus on these types of queries.

4.4.5 Interface Design

We designed a web and mobile application to show smart sips system idea consists of the following pages:

Mobile Application	Web site
<ul style="list-style-type: none">• Splash Screen• Welcome Screen• Login Screen (admin & user)• Sign Up Screen (admin & user)• Home Screen• Daily charts Screen• Weekly charts Screen• Monthly charts Screen• Report Screen• Notification Screen• Chat Screen• Profile Screen• Setting Screen• Feedback Screen	<ul style="list-style-type: none">• Login Screen• Sign Up Screen• Home Screen• Shop Screen• Cart Screen• Payment Screen• Order History Screen• Wishlist Screen• Contact Us Screen• About Us Screen• Profile Screen• Notification Screen• Dashboard Screen (Admin)• Customers Screen (Admin)• Products Screen (Admin)• Devices Screen (Admin)• Mailbox Screen (Admin)

First when user open the application, he will see splash screen in Figure 1 and then Welcome screen in figure 2 to choose login your account or make new account.



Figure 1: Splash Screen

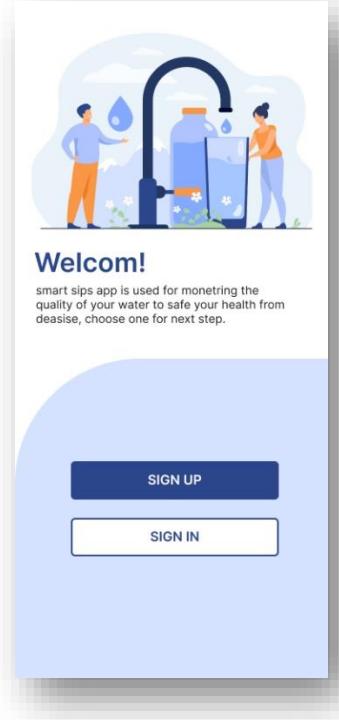


Figure 2: Welcome Screen

Secondly: When the user chooses to sign up, he will see figure 3.

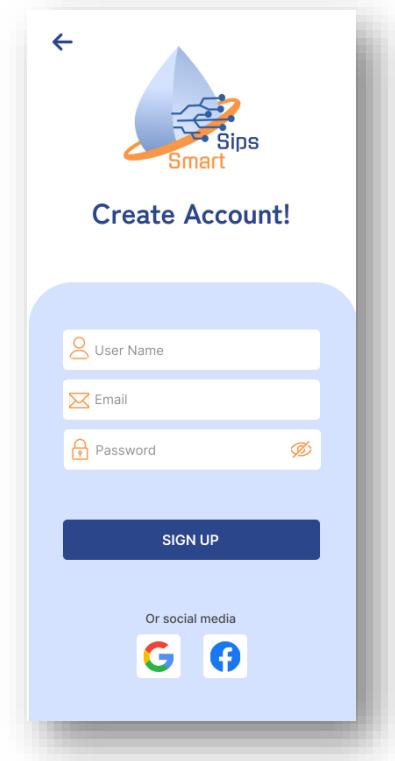


Figure 3: Sign up Screen

Or if he already has an account, he must choose login, and he will see figure 4

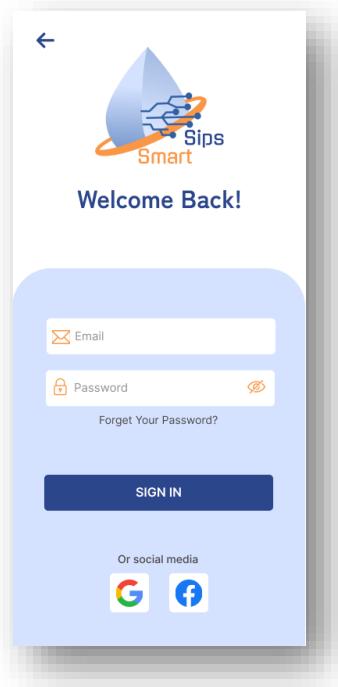


Figure 4: Login Screen

Then, he needs to answer some questions to make sure that he has some diseases or not, and this will be shown in Figure 5.

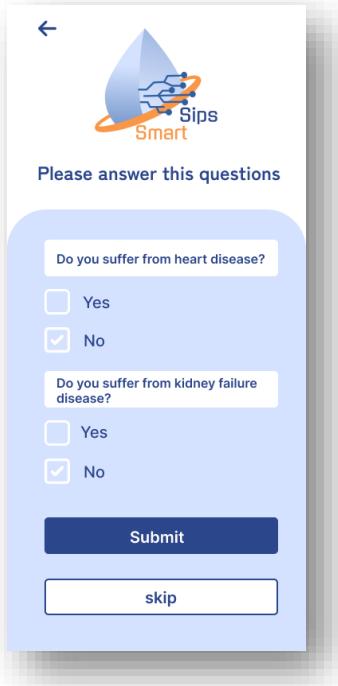


Figure 5: Questions Screen

Then, he will see the main screen in Figure 6, this page shows the types of devices used by the user.

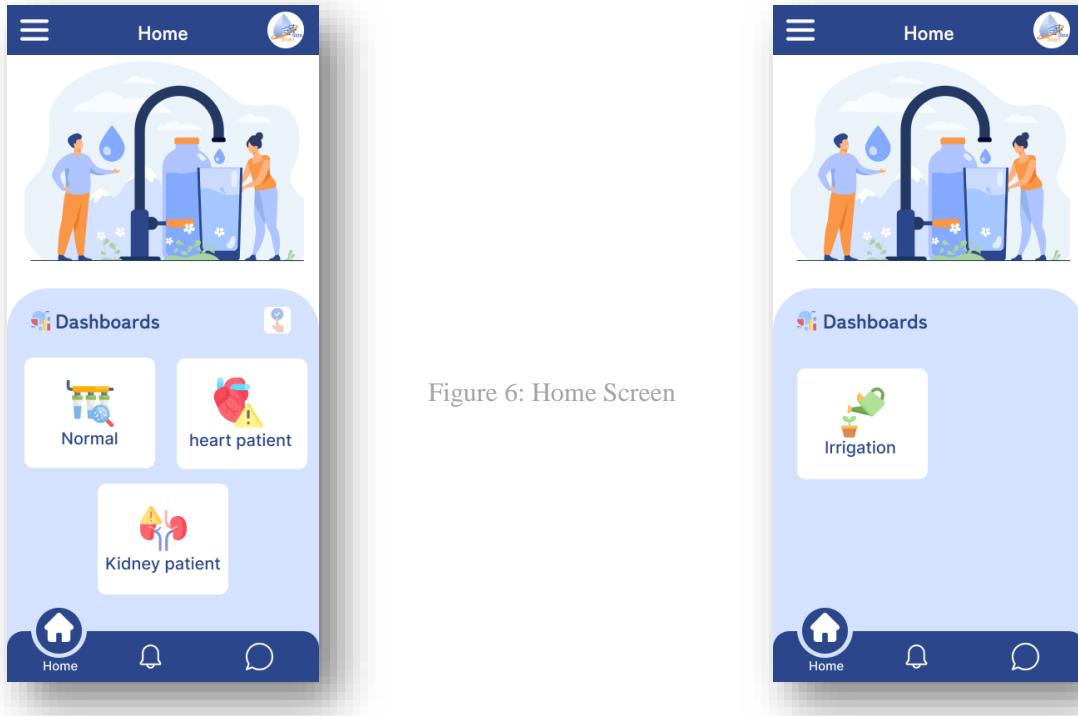


Figure 6: Home Screen

The user can control the types of devices he uses and switch between them in case he owns more than one device through the sidebar in Figures 6,7,8

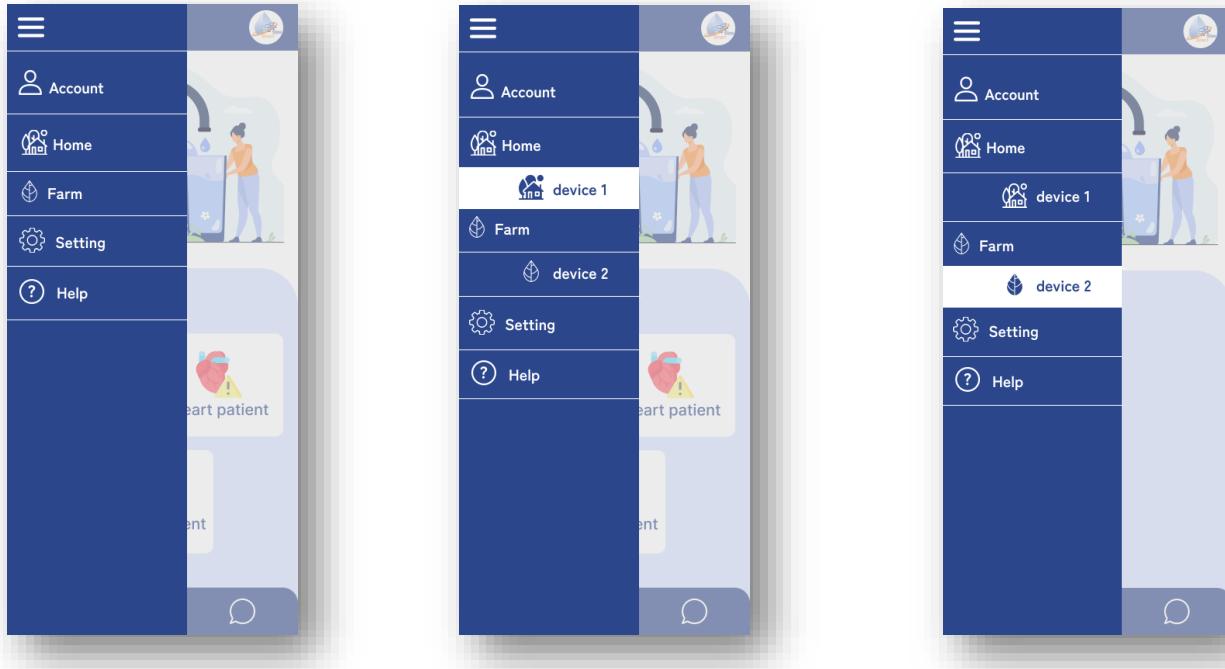


Figure 6

Figure 7

Figure 8

Then, if he clicks in any Dash Boards, he will see Figures 9,10,11,12 and all of them show the water's element in daily, weekly and monthly, in addition they include a report to these elements.

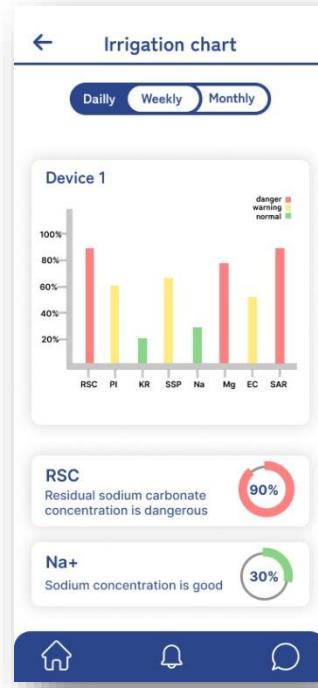
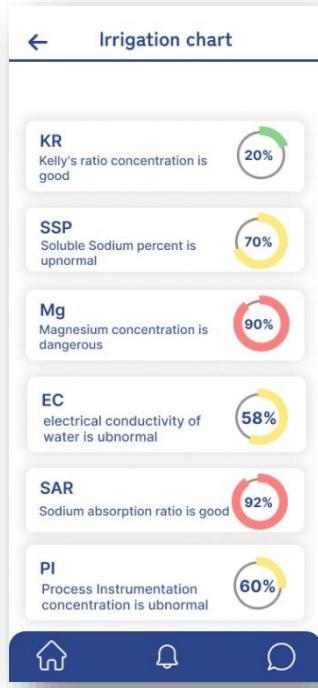


Figure 9: Daily Chart Screen



Figure 10: Weekly Chart Screen



Figure 11: Monthly Chart

Report

device 1/Irrigation

time	RSC	PI	KR	SSP	Na	Mg	EC
2/12	5.2	40	89	33	70	15	11
2/8	8.2	22	100	33	70	15	65
2/9	5.9	40	100	33	65	15	34
7/12	7.2	66	220	21	70	98	11
1/12	5.2	40	100	33	70	15	22
2/2	5.2	40	123	22	89	76	20
2/12	5.9	90	100	11	70	43	11
2/12	7.2	40	112	33	22	15	21
3/3	4.2	40	28	92	132	67	11
2/12	5.2	21	99	12	70	15	99

[Refresh](#)

Figure 12: Report Screen

Then, he has a notification screen in figure 13 to tell the user about the status of water's elements.

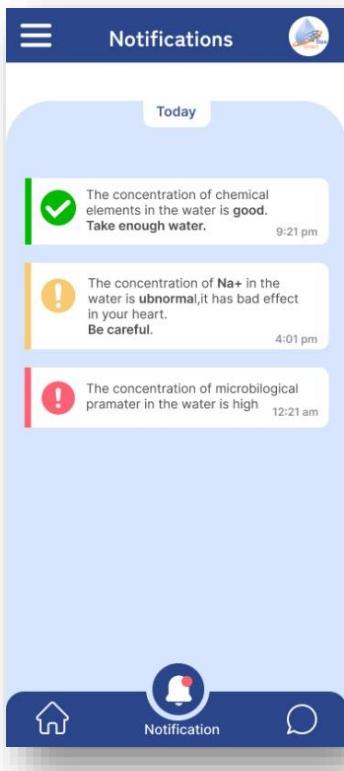


Figure 13: Notification Screen

Next, we have a chat screen in figure 14 to make the user able to connect with our company in any time to achieve a perfect quality.

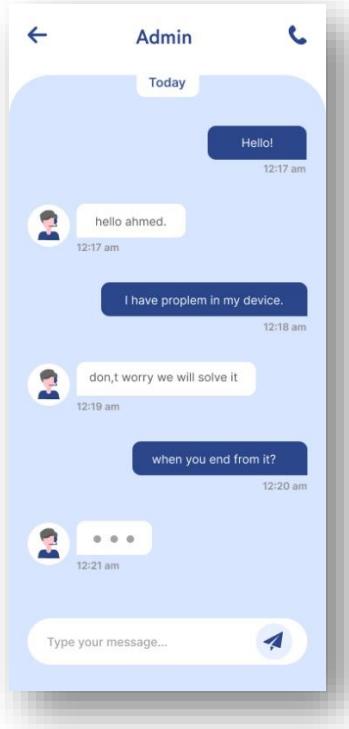


Figure 14: Chat Screen

Next, a profile screen to user in figure 15

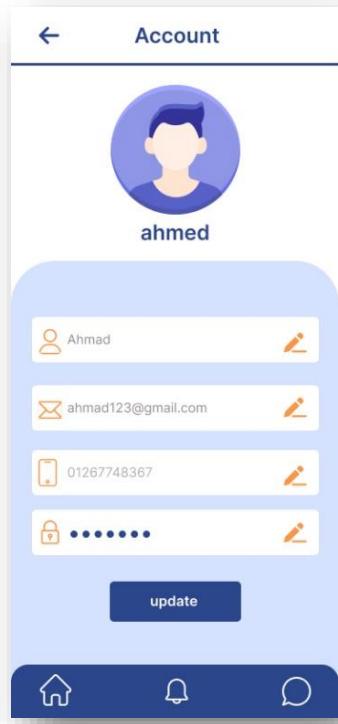


Figure 15: Profile Screen

After that, we have a setting screen in figure 16 to make user able to change language, theme mode and privacy.

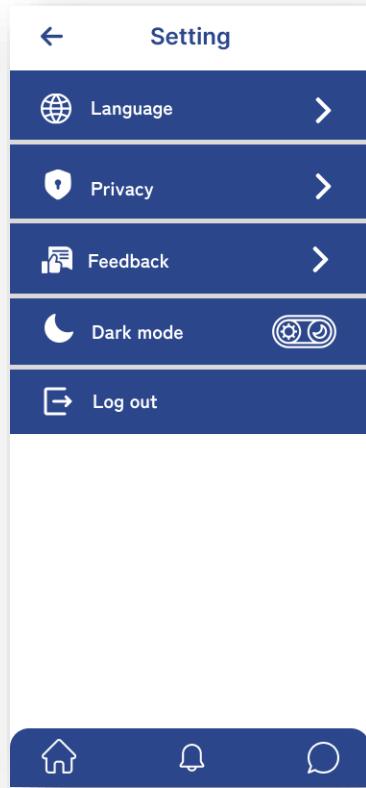


Figure 16: Setting Screen

Finally, we have feedback screen to improve our system all time based on user's rate in Figure 17.

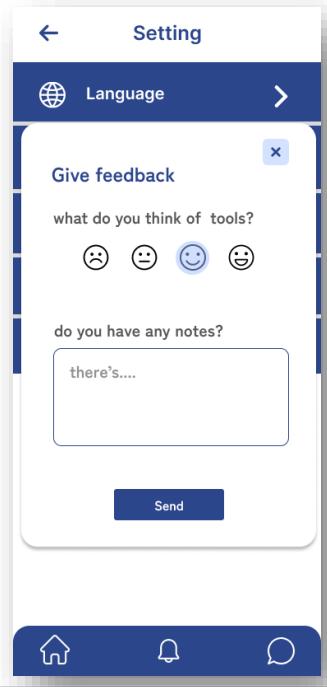


Figure 17: Feedback screen

Secondly, when user used Website.

Firstly, Figure 1 shows sign up to new user.

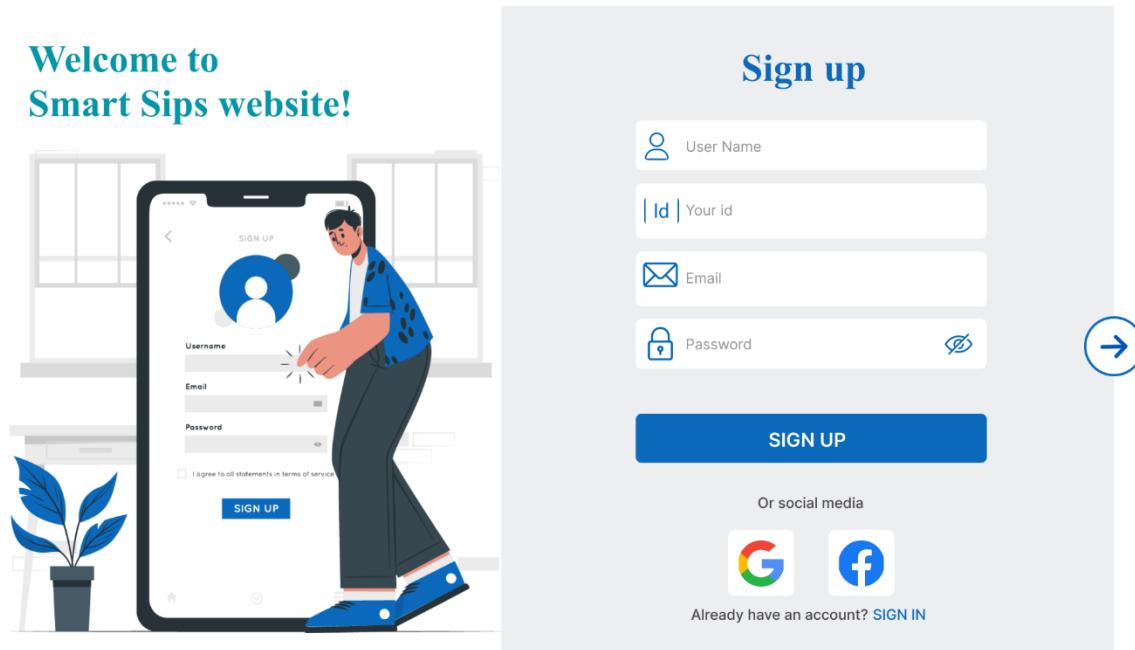


Figure 1: Sign up screen

Or if he already has an account used login Screen in figure 2.

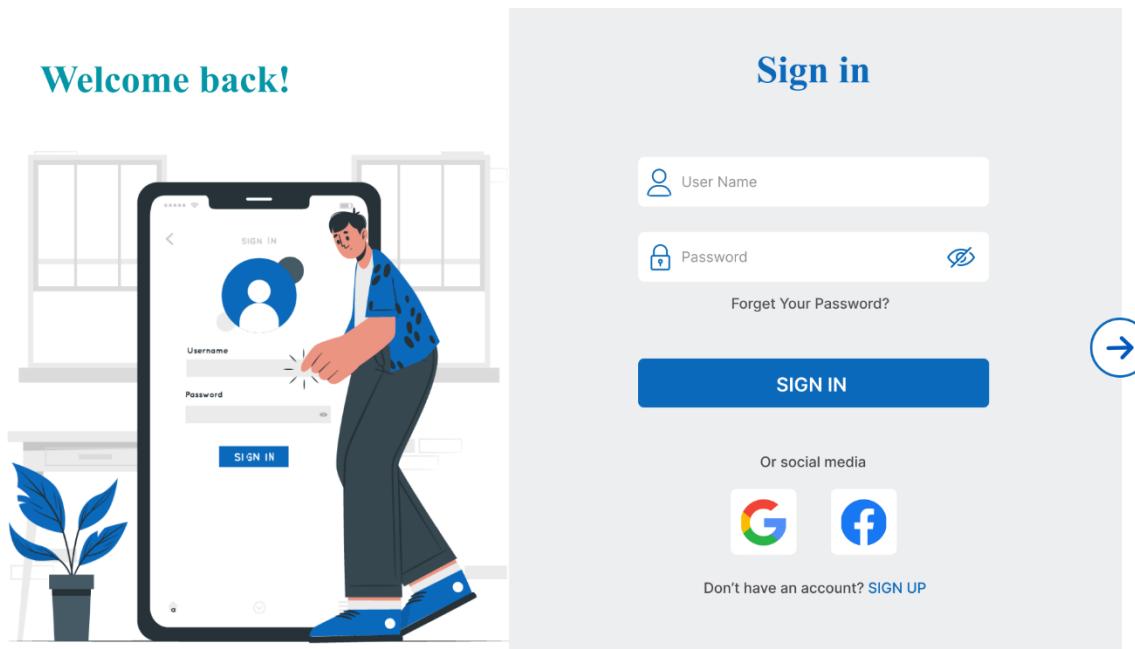


Figure 2: Sign in screen

After that, user will see our home screen in Figure 3

The image shows the homepage of the Smart Sips website. At the top, there's a navigation bar with links for Home, Shop, Pages, Contact, Sign In, and Sign Up. The main header features the text "YOUR WATER QUALITY IS PART OF YOUR HEALTH." and "We Give Preference For Your Water. Monitoring ,Analysis And Accuracy." Below this, a call-to-action button says "Let's Buy Smart Sips And Download Our Remote Monitoring App." There are two images: one of water being poured into a glass and another of a water sample in a petri dish.

ADVANTAGE Best Advantages

- Effectiveness**: With Our Davica WA Provides High Accuracy And Trusted Results.
- Free Installation**: The Maintenance Team Will Come To Your Home And Decide Where To Install The Device.
- Real Time Monitoring**: The Davica Monitors Changes In Water Quality And Sends Alerts To The User.
- Warranty**: The Warranty Period Is Arts For Two Years. We Any Device Will Be Repaired At 50% Discount.

EASY AND FAST Use Smart Sips Device In 3 Easy Steps

- Briefing**: Create your own account on our website, get to know us through the about us page, and finally sign up for any new information.
- Processing**: You can buy a smart sips device from our website then determine the location of installation during payment process.
- Finishing**: You can download our app to monitor water quality remotely, you can chat with the admin in case of a malfunction, finally you can send a feedback to us.

DOWNLOAD Download Smart Sips On Your Device.

Smart Sips app is the perfect solution to monitor your water quality to protect your health from diseases, don't forget to download it for free and use it in an easy way.

[Play Store](#) [Apple Store](#)

TESTIMONIALS What People Say About Us.

Mike Taylor, Cairo, Egypt: "It was a good experience, the order arrived on time and my device was in good quality and effectively send accurate results in real time .this is not my last deal with them."

Grice Tomas, Alex, Egypt

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Your Email Subscribe

Smart Sips
Check Your Water To Get Good Health.

Company
About
Careers
Mobile

Contact
Help
Press
Affiliates

More
Offers
Services
Popular

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Figure 3: Home Screen

After that, we enable the user to shop on our website in order to purchase one of our products, in the Figure 4.

Smart Sips

- Home
- Shop
- Pages
- Contact
- Sign In
- Sign Up

We Give Preference For Your Water. Monitoring ,Analysis And Accuracy.

Catogries

All
Device
Accessories

Filter By:

Price
30\$ 2000\$

Sort By:

Popular
 Newest
 Oldest

	LCD Screen 70\$		
	Solar Panel 300\$		
	Smart Sips Device 1200\$		
	Smart Sips Device 1200\$		
	LCD Screen 70\$		
	Solar Panel 300\$		

Next Page →

1 2 3

Smart Sips

Check Your Water To Get Good Health.

Company

About
Careers
Mobile

Contact

Help
Press
Affiliates

More

Offers
Services
Popular

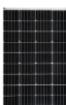
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Figure 4: Shop Screen

To facilitate the shopping process for the customer, we provided him with a shopping cart in order to add all the tools he needs to it in the Figure 5.

Smart Sips Home Shop Pages Contact Sign In Sign Up

Your Cart

 Accessories Solar Panel	300\$	+ 1 -	300\$	X
 Device Smart Sips	1200\$	+ 2 -	2400\$	X
 Accessories LCD Screen	70\$	+ 1 -	70\$	X

Summary

4 ITEMS	2770.00\$
SHIPPING	10.00\$
ADD COUPON CODE	
<input type="text" value="Enter Your Code"/>	
TOTAL PRICE	2780.00\$
CHECK OUT	

Smart Sips

Check Your Water To Get Good Health.

Company

- About
- Careers
- Mobile

Contact

- Help
- Press
- Affiliates

More

- Offers
- Services
- Popular

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Figure 5: Cart Screen

In addition, the electronic payment process is available for more facilities for the user in the purchase process in Figure 6.

Payment

Choose Payment Method



① Billing Info

Full Name

Billing Address

City

Zip Code

Country

② Credit Card Info

Card Holder Name

Card Number

EXP.Month

EXP.Year

CVV Number

[BACK](#)[CONTINUE](#)

Figure 6: Payment Screen

And make a pane for the user to review old purchases in Figure 7.

Smart Sips

Home

Shop ▾

Pages ▾

Contact

Sign In

Sign Up

Order History

3 Orders

● Dispatched



Accessories
Solar Panel

Order Id
#672661

Expected Date
Jul 9 2022

[View Order Detail](#)

[Get Invoice](#)

● Delivered



Device
Smart Sips

Order Id
#688921

Expected Date
Jun 12 2022

[View Order Detail](#)

[Get Invoice](#)

● Delivered



Accessories
LCD Screen

Order Id
#688921

Expected Date
Jun 12 2022

[View Order Detail](#)

[Get Invoice](#)

Smart Sips

Check Your Water To Get Good Health.

Company

About
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Offers
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Popular



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Figure 7: Order History Screen

In addition to providing a page for the user to use to add his favorite devices, in Figure 8.

Smart Sips

Home Shop Pages Contact Sign In Sign Up

Wishlist

Product	Unit Price	Stock Status	
 Accessories Solar Panel	300\$	In Stock	ADD TO CARD 
 Device Smart Sips	1200\$	In Stock	ADD TO CARD 
 Accessories LCD Screen	70\$	In Stock	ADD TO CARD 

Smart Sips

Check Your Water To Get Good Health.

Company

- About
- Careers
- Mobile

Contact

- Help
- Press
- Affiliates

More

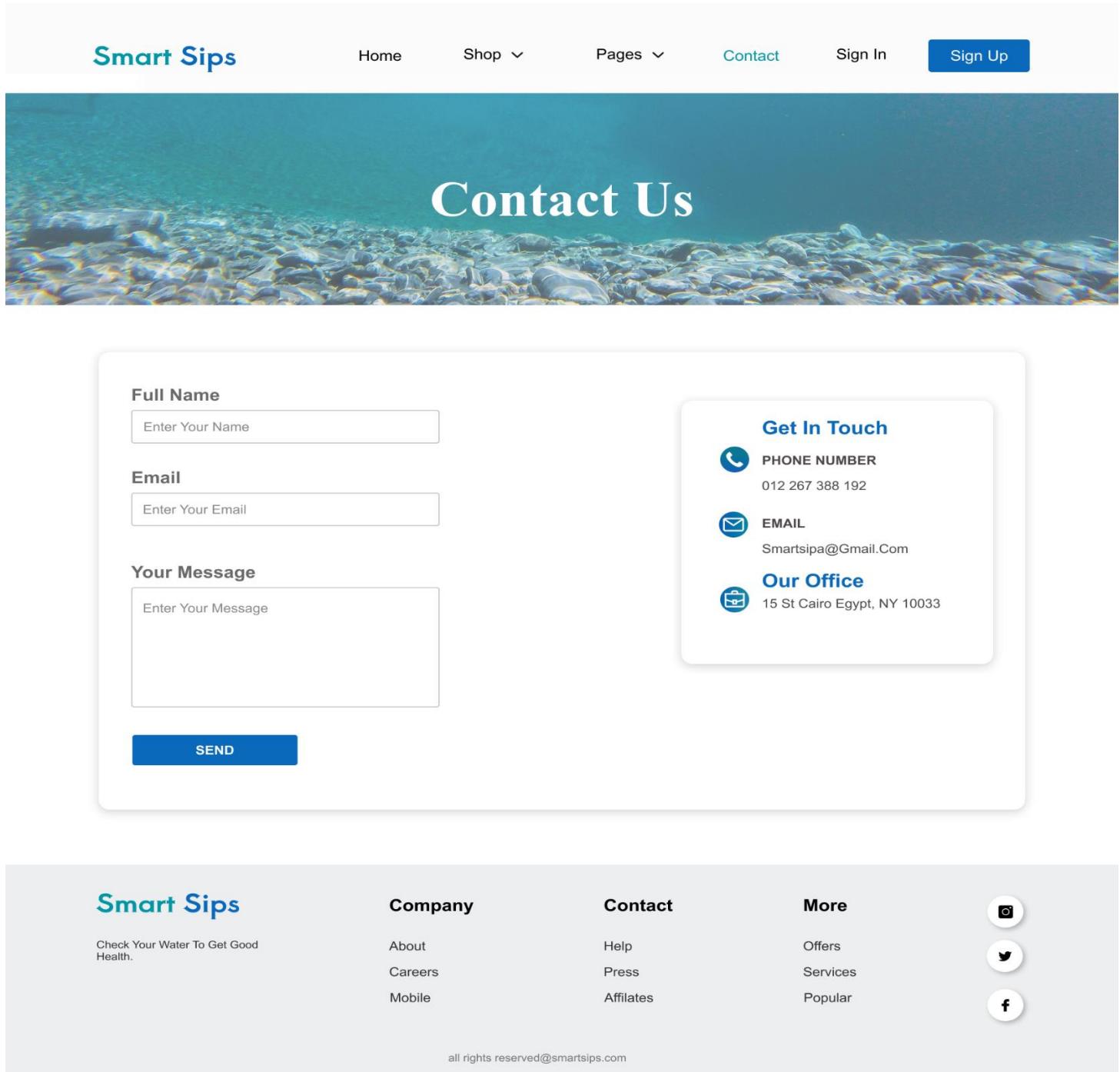
- Offers
- Services
- Popular

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Figure 8: Wishlist Screen

In order to facilitate communication with us, we have provided the user with many ways to communicate with us in Figure 9.



The screenshot shows the 'Contact Us' page of the Smart Sips website. At the top, there's a navigation bar with links for Home, Shop, Pages, Contact, Sign In, and Sign Up. Below the navigation is a large, scenic underwater photograph of a rocky seabed. Overlaid on this image is the text 'Contact Us' in a large, white, sans-serif font. The main form area is enclosed in a light gray rounded rectangle. It contains three input fields: 'Full Name' (placeholder: Enter Your Name), 'Email' (placeholder: Enter Your Email), and 'Your Message' (placeholder: Enter Your Message). Below these fields is a blue 'SEND' button. To the right of the form is a white sidebar with the title 'Get In Touch'. It lists a phone number (012 267 388 192) with a telephone icon, an email address (Smartsipa@Gmail.Com) with an envelope icon, and an office location (15 St Cairo Egypt, NY 10033) with a briefcase icon. At the bottom of the page is a footer with the 'Smart Sips' logo, a tagline 'Check Your Water To Get Good Health.', a 'Company' section with links to About, Careers, and Mobile, a 'Contact' section with links to Help, Press, and Affiliates, a 'More' section with links to Offers, Services, and Popular, and social media icons for Instagram, Twitter, and Facebook. A copyright notice at the very bottom reads 'all rights reserved@smartsips.com'.

Smart Sips

Check Your Water To Get Good Health.

Company

- About
- Careers
- Mobile

Contact

- Help
- Press
- Affiliates

More

- Offers
- Services
- Popular

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Figure 9: Contact us Screen

And to define the user who we are, we have provided a page about us in Figure 10.



The screenshot shows the 'About Us' page of the Smart Sips website. At the top, there's a navigation bar with links for Home, Shop, Pages, Contact, Sign In, and Sign Up. The main title 'About Us' is centered at the top of the page. Below it, there's a section titled 'Our Vision' with a descriptive paragraph. To the right of this text is a cartoon illustration of four people (three women and one man) looking confused, each with question marks above their heads. Below the vision section is another cartoon illustration showing several people working together on a project, with gears and documents visible. To the right of this illustration is a section titled 'Our Process' with two paragraphs of text describing the product's functionality and data collection process.

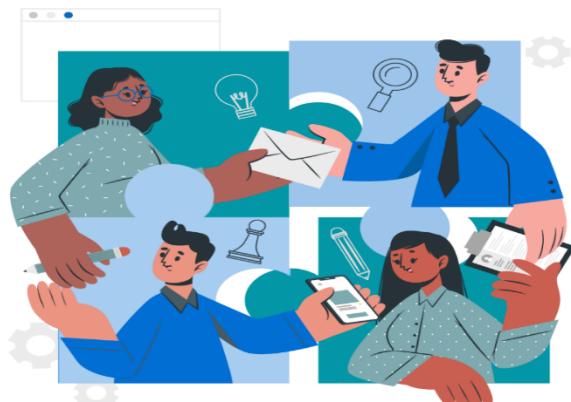
Smart Sips

Home Shop Pages Contact Sign In Sign Up

About Us

Our Vision

We Are A Team In The College Of Computer Science Working On Creating A Product That Analyzes Water Periodically To Protect Our Health From Polluted Water That We Drink Or Use For Irrigation, Which May Cause Plant Diseases.



Our Process

This Product Will Be Put Into Pure Water Centers To Determine Suitability For Drinking, In Water Tanks In Homes Or Near Water Filters In Faucets To Determine Filter Efficiency.

These Sensors Collect And Analyze Data In Real Time Upload It To The Server, And Then Display This Results On Our Mobile App Dashboard Which User Will Download It To Monitor Concentrations Remotely Generated Items And Warnings.

Smart Sips

Check Your Water To Get Good Health.

Company

About
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Mobile

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More

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Services
Popular



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Figure 10: About us Screen

In addition to providing the user with a personal page of his own, for the sake of more security and privacy, in Figure 11, and a page for sending notifications about the device and the latest developments in it, in Figure 12.

Smart Sips

Home

Shop

Pages ▾

Contact



Your Account



Ahmed Alsamahy

First Name

Ahmed

Full Name

Alsamahy

Email

Ahmed123@Gmail.Com

Country

Egypt

Phone Number

123 671 167 889 998

Address

22 Bakar Street Alex

Save

Smart Sips

Check Your Water To Get Good Health.

Company

About

Careers

Mobile

Contact

Help

Press

Affiliates

More

Offers

Services

Popular



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Figure 11: Profile Screen



Notifications

Welcome!

All ▾

Sam Nelson



Sam Send Message For You Check Your Mailbox. Lorem Ipsum Dolor
Sit Amet, Consectetur Adipiscing Elit. Sed Sed Ultrices Dolor, Ac Maximus Ligula

3 Hours

Mail

Tamer Boerger



Tamer Is New Customer In Smart Sips. Lorem Ipsum Dolor Sit Amet,
Consectetur Adipiscing Elit. Sed Sed Ultrices Dolor, Ac Maximus Ligula

11:26 PM

Customers

Sam Nelson



Sam Send Message For You Check Your Mailbox. Lorem Ipsum Dolor
Sit Amet, Consectetur Adipiscing Elit. Sed Sed Ultrices Dolor, Ac Maximus Ligula

Yesterday

Mail

Tamer Boerger



Tamer Send New Order From Smart Sips. Lorem Ipsum Dolor Sit Amet,
Consectetur Adipiscing Elit. Sed Sed Ultrices Dolor, Ac Maximus Ligula

11:26 PM

Orders

Sam Nelson



Sam Send Message For You Check Your Mailbox. Lorem Ipsum Dolor
Sit Amet, Consectetur Adipiscing Elit. Sed Sed Ultrices Dolor, Ac Maximus Ligula

2 Day

Mail

Figure 12: Notification Screen

For more control over our system, we have added a special section for the admin to follow up on customers' devices and purchases, and to respond to users' inquiries.

At first, the administrator will see a panel to display the buying and selling rates of the devices and the rate of customer satisfaction with our devices, in Figure 13



Figure 13: Dashboard Screen

After that, a page will be provided to display the current customers and the status of each device for each customer to follow up on the device and avoid problems, in Figure 14.

The screenshot displays the 'Customers' screen of the 'Smart Sips' application. On the left, a vertical blue sidebar lists navigation options: Dashboard, Customers (selected), Orders, Products, Devices, and Mailbox. The main content area has a header 'Customers' with a 'Welcome!' message, a search bar, and a user profile icon. Below the header, it says '503 Customers'. A table lists customer details with columns: Profile, Name, Email, Phone, Country, Address, Join Date, Status, and Action. The table contains 10 entries, with the first few rows shown below:

Profile	Name	Email	Phone	Country	Address	Join Date	Status	Action
	Ahmed	Ahmed123@Gmail.Com	0126574779	Egypt	22 Bakar Street Alex	11 Jul 2022	Active	
	Mona	Mona123@Gmail.Com	0128727989	Iraq	22 Ail Street	11 Jun 2022	In Active	
	Sama	Sam3@Gmail.Com	012652267	Egypt	2 Akar Streee Cairo	11 Jul 2022	Pending	
	Nada	Nadarr@Gmail.Com	0126579827	Soria	Bar Street Halab	11 Jul 2022	Active	

At the bottom, there is a pagination bar with 'Show 10 Of 503 Entries', 'Previous', '1', and 'Next' buttons.

Figure 14: Customers Screen

The existence of a page that enables administrators to follow up on all available orders in the system and the status of each order, in figure 15.

The screenshot shows the 'Orders' screen of the 'Smart Sips' application. The left sidebar has a blue background with icons for Dashboard, Customers, Orders (selected), Products, Devices, and Mailbox. The main area has a light blue header with the title 'Orders' and a 'Welcome!' message. Below the header is a sub-header '16 New Orders'. There are three dropdown filters: 'Show Entries' set to 10, 'This Week', and 'All Orders'. A search bar with a magnifying glass icon and a download button are also present. The main content is a table with 10 rows of order data. Each row includes columns for Id, Customer, Address, Product, Amount, Price, Date, Status, and Action (edit and delete icons). The orders listed are:

ID	Customer	Address	Product	Amount	Price	Date	Status	Action
#1677	Ahmed	22 Bakar Street Alex	Smartsips	1	1200\$	11 Jul 2022	Completed	
#2675	Mona	22 Ail Street	Lcd Screen	2	140\$	11 Jun 2022	Cancelled	
#3345	Sama	2 Akar Streee Cairo	Smartsips	1	1200\$	23 Jul 2022	Pending	
#4225	Nada	Bar Street Halab	Solar Panel	1	300\$	11 Jul 2022	Completed	
#5765	Fatma	22 Fat Street Domiat	Smart Sips	3	3600\$	11 Jul 2022	Pending	
#6675	Ahmed	22 Bakar Street Alex	Lcd Screen	2	140\$	11 Jul 2022	Completed	
#7236	Mona	22 Ail Street	Solar Panel	1	300\$	22 Jul 2022	Completed	
#8543	Sama	2 Akar Streee Cairo	Smart Sips	2	2400\$	9 Jul 2022	Completed	
#9755	Nada	Bar Street Halab	Smart Sips	3	3600\$	11 Jul 2022	Cancelled	
#1076	Fatma	22 Fat Street Domiat	Lcd Screen	1	70\$	11 Feb 2022	Completed	

At the bottom, there is a link 'Show 10 Of 16 Entries' and navigation buttons for 'Previous' (highlighted in blue), '1' (the current page), and 'Next'.

Figure 15: Orders Screen

And also, a page to display all the devices and products related to the system and the price and quantity of each product, in figure 16.

The screenshot shows the 'Products' screen of the 'Smart Sips' application. The left sidebar has a blue background with white icons and text for Dashboard, Customers, Orders, Products (which is selected and highlighted in blue), Devices, and Mailbox. The main area has a light blue header with the title 'Products' and a 'Welcome!' message. Below the header is a search bar with a magnifying glass icon and a user profile icon. The main content area is titled 'Product List (30)' and contains a table with 10 rows of data. The table columns are: Id, Image, Name, Category, Price, Sales, Stock, and Action. The data in the table is as follows:

Id	Image	Name	Category	Price	Sales	Stock	Action
#1		Solar Panel	Accessories	300\$	33	50	
#2		Smartsips	Device	1200\$	100	0	
#3		Lcd Screen	Accessories	40\$	50	300	
#4		Solar Panel	Accessories	300\$	33	50	
#5		Smartsips	Device	1200\$	100	0	
#6		Lcd Screen	Accessories	70\$	50	300	
#7		Solar Panel	Accessories	300\$	33	50	
#8		Smartsips	Device	1200\$	100	0	
#9		Lcd Screen	Accessories	70\$	50	300	
#10		Lcd Screen	Accessories	70\$	50	300	

At the bottom left, it says 'Show 10 Of 30 Entries'. At the bottom right, there are 'Previous' and 'Next' buttons, with the page number '1' in the center.

Figure 16: Products Screen

And also, the availability of a map to display the locations of the availability of our devices and display the details of each device to facilitate access to each device in the event of any malfunction by the officials, in figure 17.

The screenshot shows the 'Devices' screen of the 'Smart Sips' application. The left sidebar has a blue background with white icons and labels: Dashboard, Customers, Orders, Products, Devices (selected), and Mailbox. The main content area has a light blue header with a search bar and a user profile icon. Below the header is a section titled 'Devices' with a welcome message. The central feature is a 'Devices Map' for 'Egypt' showing a street layout with roads like Fraser Highway, Logan Avenue, 56 Avenue, 54A Avenue, 53A, 203 Street, and 204 Street. Seven circular icons with people holding phones are placed on the map at various locations. A callout box on the right side provides details for one of these devices:

type	status	Qw	monitoring
device1	Home	active	normal
device2	Farm	failed	bad

Figure 17: Devices Screen

The availability of conversations to facilitate the response to customers and meet their desires and help them effectively, in figure 18.

The screenshot shows the 'Mail Box' screen of the 'Smart Sips' application. The left sidebar has a blue background with icons for Dashboard, Customers, Orders, Products, Devices, and Mailbox (which is selected). The main area has a light blue header with the title 'Mail Box' and a 'Welcome!' message. At the top right are a search bar, a magnifying glass icon, a bell icon, and a user profile picture. Below the header are navigation tabs: 'Inbox' (selected, with a '1' badge), 'Sent', 'Starred' (with a '2' badge), 'Draft', and 'Deleted'. The inbox list displays eight messages from different users:

User	Message Content	Date	Action Buttons
Sam Nelson	Hi Smart Sips I Will To Repot About Some Thing	Monday 11:26 PM	trash star 1
Tamer Boerger	Hi Smart Sips I Will To Thanks You For Many	Monday 11:26 PM	trash star
Sam Nelson	Hi Smart Sips I Will To Repot About Some Thing	Monday 11:26 PM	trash star
Tamer Boerger	Hi Smart Sips I Will To Repot About Some Thing	Monday 11:26 PM	trash star
Sam Kamil	Hi Smart Sips I Will To Repot About Some Thing	Monday 11:26 PM	trash star
Nelson Boerger	Hi Smart Sips I Will To Repot About Some Thing	Monday 11:26 PM	trash star
Sam Nelson	Hi Smart Sips I Will To Repot About Some Thing	Monday 11:26 PM	trash star
Kamil Boerger	Hi Smart Sips I Will To Repot About Some Thing	Monday 11:26 PM	trash star

Figure 18: Mailbox Screen