

Contents

0.1	Introduction to MCCU	3
0.2	Software Loading	4
0.3	LOGIN	5
0.4	IP CONFIGURATION	7
0.5	FORGET PASSWORD	8
0.6	REGISTER NEW USER	10
0.7	COMMUNICATION	11
0.8	Toolbar	12
0.9	MAIN DASHBOARD	21
0.10	SATELLITE TAB	24
0.11	MONITOR TAB	25
0.12	DIAGNOSTIC TAB	26

List of Figures

1	Software Installation window.	4
2	Software logo.	4
3	LOGIN.	5
4	LOGIN.	6
5	LOGIN.	6
6	Communication window	7
7	FORGET PASSWORD TAB	8
8	FORGET PASSWORD TAB	9
9	FORGET PASSWORD TAB	10
10	FORGET PASSWORD TAB	10
11	Communication window	11
12	Toolbar	12
13	SAFE MODE	12
14	HOME POSITION	13
15	Shutdown ADE confirmation	14
17	Tx Mute and Tx Unmute	15
16	Restart ADE confirmation	15
18	Change Password Window.	16
19	Logout Window.	17
20	Change IP address.	18
21	CPU information.	19
22	Machine information.	20
23	DASHBOARD	21
24	BP below threshold	22
25	Fault in mechanical part	23
26	SATELLITE TAB	24
27	MONITOR TAB	25
28	DIAGNOSTICS TAB	26

0.1 Introduction to MCCU

MCCU stands for Master Command Control Unit. It is a graphically based antenna remote control program for below deck equipment (BDE). The MCCU enables users to easily and conveniently set up antenna parameters using a computer.

0.2 Software Loading

MCCU is shown in Figure 1. Double-click the 'SamarSat.exe' icon for opening of MCCU . It will start your software on your PC/ Laptop.



Figure 1: Software Installation window.



Figure 2: Software logo.

0.3 LOGIN

When you start MCCU, MCCU desktop appears (see Figure 5). After loading the software , it displays login window in which user has to put username and password for further process .



Figure 3: LOGIN.

Here is a description of the various credentials of login screen.

1. Enter Username .
2. Enter password(masked password) .
3. If Show Password is checked, then it will show the readable password .
4. For example , Login by using the username and password below .
 - (a) Username : admin
 - (b) Password : 1234
5. Click the OK button,if username and password is correct then IP configuration window(on first time installation to set IP address and port, else communication window) will appear else it will display error message "INCORRECT USERNAME OR PASSWORD" and forget password button will appear on window .



Figure 4: LOGIN.

6. If no device connected to the system, ten popup message appear.



Figure 5: LOGIN.

7. On clicking Register , User can add new user and password*
8. On clicking Exit it will exit the software.

* It will be password protected, only admin has rights to add new user.

0.4 IP CONFIGURATION

When the Software is installed first time, it will allow the user to set IP address and port.

OPEN CONFIGURATION

CONFIGURATION SETTINGS

PARAMETERS	MAX	MIN
Flag :	1	0
SYS TEMPERATURE :	-10.0	60.0
OSU ROLL :	30.0	-30.0
OSU PITCH :	15.0	-15.0
OSU YAW :	360.0	0.0
BEACON POWER :	-60.0	-80.0
TARGET AZ :	360.0	0.0
TARGET EL :	90.0	-20.0
TARGET POL :	45.0	-45.0
CURRENT EL POS :	90.0	-20.0
CURRENT xEL POS :	30.0	-30.0
CURRENT AZ POS :	360.0	0.0
CURRENT POL POS :	45.0	45.0

SAVE**CANCEL**

Figure 6: Communication window

1. It will automatically show the available mac address .
2. Click on OK Button to enter main dashboard.
3. If their is no connection , then it will show error message "No connection".

0.5 FORGET PASSWORD

On clicking Forget password in Login window, forget password window appears.



Figure 7: FORGET PASSWORD TAB

Here is a description of the various credentials of forget password tab.

1. Enter Username .
2. Enter New password and confirm password .
3. Click on Confirm Button :
 - (a) If the username is in default or saved database then it will change the password else show error message " Incorrect Username".
 - (b) New Password and Confirm password should match else it will show error message "New Password and Confirm Password does not match".
 - (c) On checking Every input credential, it will ask security password which only be known to admin user.



Figure 8: FORGET PASSWORD TAB

4. On clicking Back Button , it will go back to login window.

0.6 REGISTER NEW USER

On clicking Forget password in Login window forget password window appears.

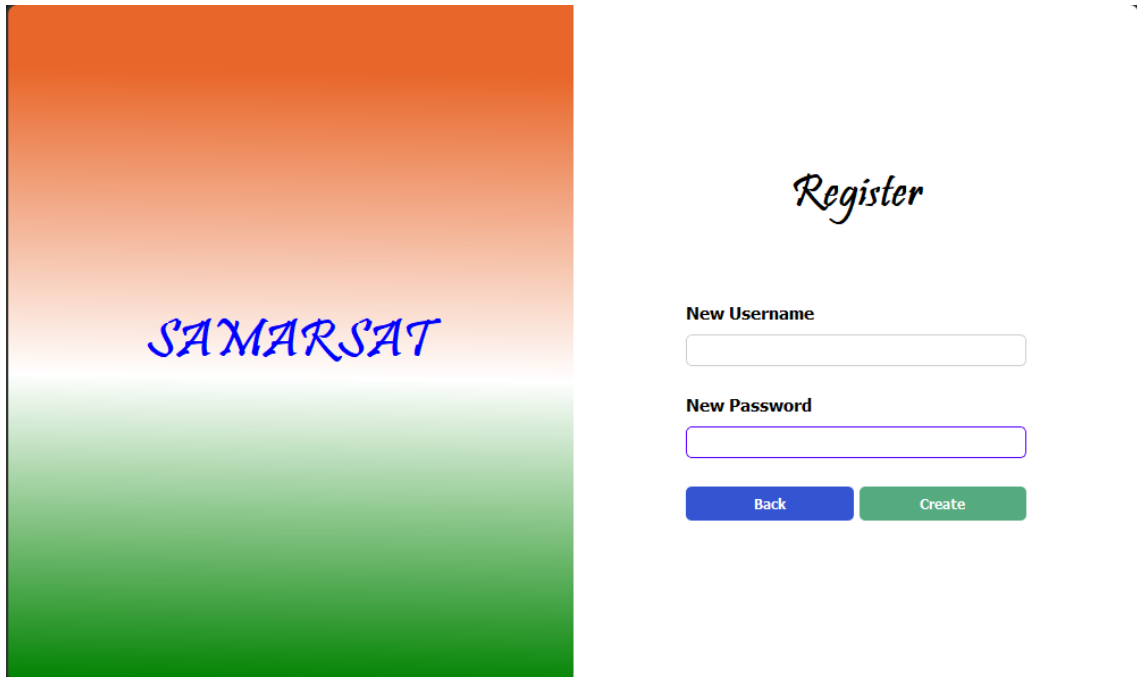
The screenshot shows a web application window titled "Register". On the left, there is a vertical banner with a gradient from orange at the top to green at the bottom, featuring the word "SAMARSAT" in blue, stylized capital letters. On the right, the registration form is displayed. It includes a title "Register" in a cursive font, followed by two input fields: "New Username" and "New Password". Below these fields are two buttons: a blue "Back" button and a green "Create" button.

Figure 9: FORGET PASSWORD TAB

Here is a description of the various credentials of forget password tab.

1. Enter Username .
2. Enter New password and confirm password .
3. Click on Create Button, it will ask security password to register new user.*

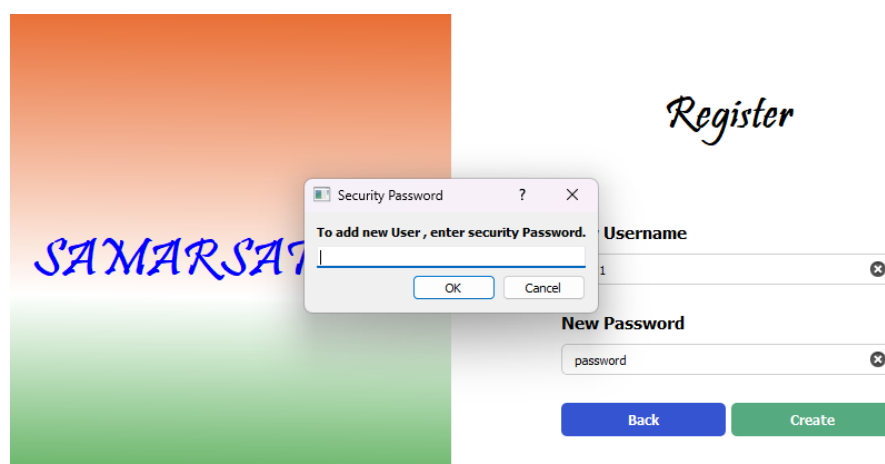
This screenshot shows the same "Register" window as Figure 9, but with a modal dialog box overlaid in the center. The dialog box is titled "Security Password" and contains the text "To add new User , enter security Password." followed by a single-line text input field. At the bottom of the dialog are "OK" and "Cancel" buttons. In the background, the "Register" form is partially visible, showing the "Username" and "New Password" fields, which now have "1" and "password" entered respectively, and the "Back" and "Create" buttons.

Figure 10: FORGET PASSWORD TAB

4. On clicking Back Button , it will go back to login window.

*Only admin user has rights to add new user.

0.7 COMMUNICATION

Communication window appears(see Figure 12). on screen when correct ID and password are entered.



SAMARSAT

Communication

IP Address

192 . 168 . 13 . 18

Port

9999

Back Exit OK

Figure 11: Communication window

1. It will automatically show the available IP address and password .
2. Click on OK Button to enter main dashboard.
3. If there is no connection , then it will show error message "No connection".

0.8 Toolbar

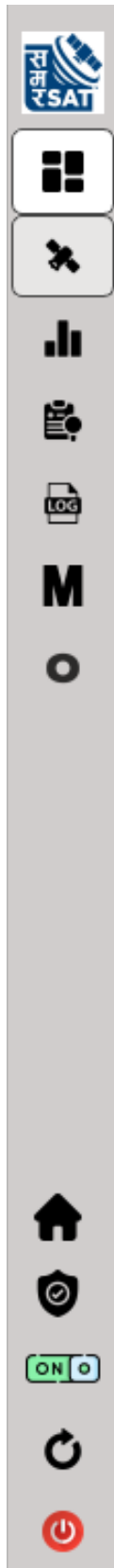



Figure 12: Toolbar

1.  **SafeMode** : On clicking the safemode button, it sends command to ADE to go in safemode and button turns green . To release safemode again click on safemode button as it will send command to ADE to release safemode and button turns back to its original color.

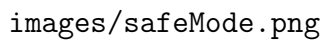

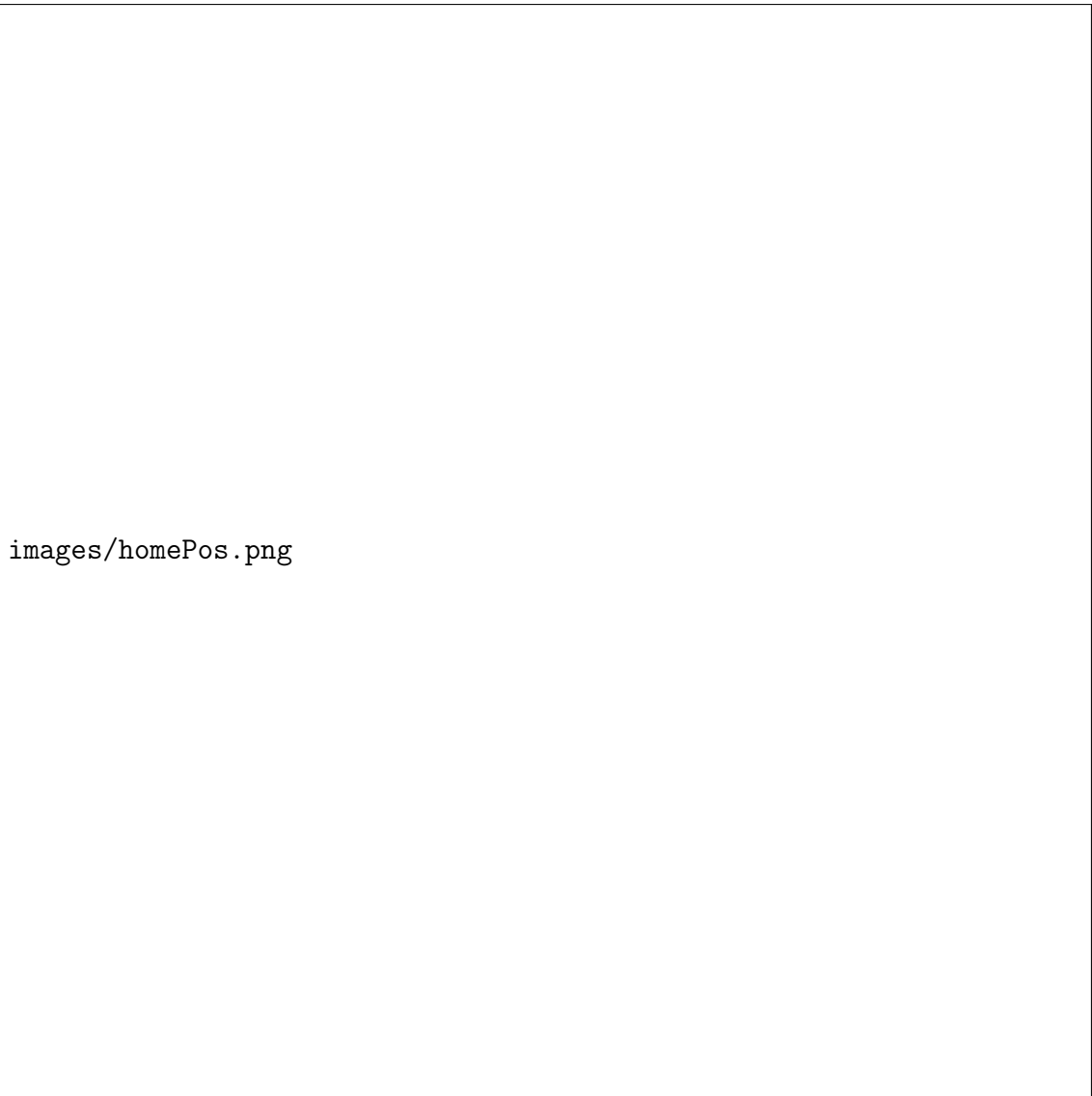


Figure 13: SAFE MODE


- All the currents will be zero.
2.  **Home** : On clicking the home button, it sends command to ADE to go in home position and button turns green . To release home position, again click on home button as it will send command to ADE to release home position and button turns back to its original color. Current Antenna position parameters show home position readings.

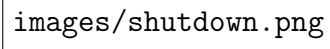


images/homePos.png

Figure 14: HOME POSITION

All the currents will be zero.

3.  **Shutdown :** On clicking, it asks for confirmation to turn off ADE. If "yes" then ADE will shutdown.

A rectangular box containing the text 'images/shutdown.png'. This likely represents a placeholder for a screenshot of a system shutdown confirmation screen.

images/shutdown.png

Figure 15: Shutdown ADE confirmation

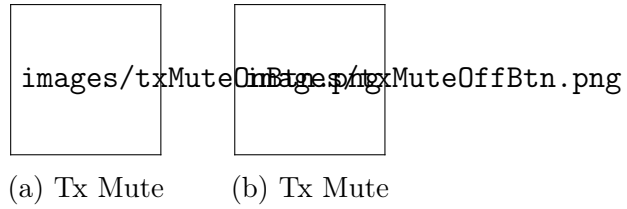



Figure 17: Tx Mute and Tx Unmute

4.  **Restart** :On clicking, it asks for confirmation to restart ADE. If "yes" then ADE will restart.

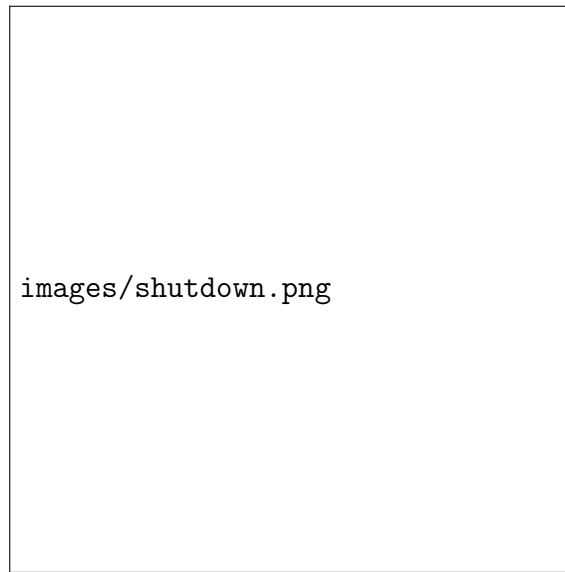




Figure 16: Restart ADE confirmation

5.  **TxMute** : On clicking the Tx mute button, it sends command to ADE to go in cutoff BUC current and button turns green . To turn off tx mute, again click on tx mute button as it will send command to ADE to start BUC current and button turns back to its original color.
6.  **User** : On clicking user button, account window pops up. It gives access to change user password and logout of current account .
- (a) **Change Password** : To change password , enter user ID , current password , new password and confirm password . If the input credentials are wrong it will display error message .

BDE : MCCU

Change Password

ENTER ID :

ENTER CURRENT PASSWORD :

ENTER NEW PASSWORD :

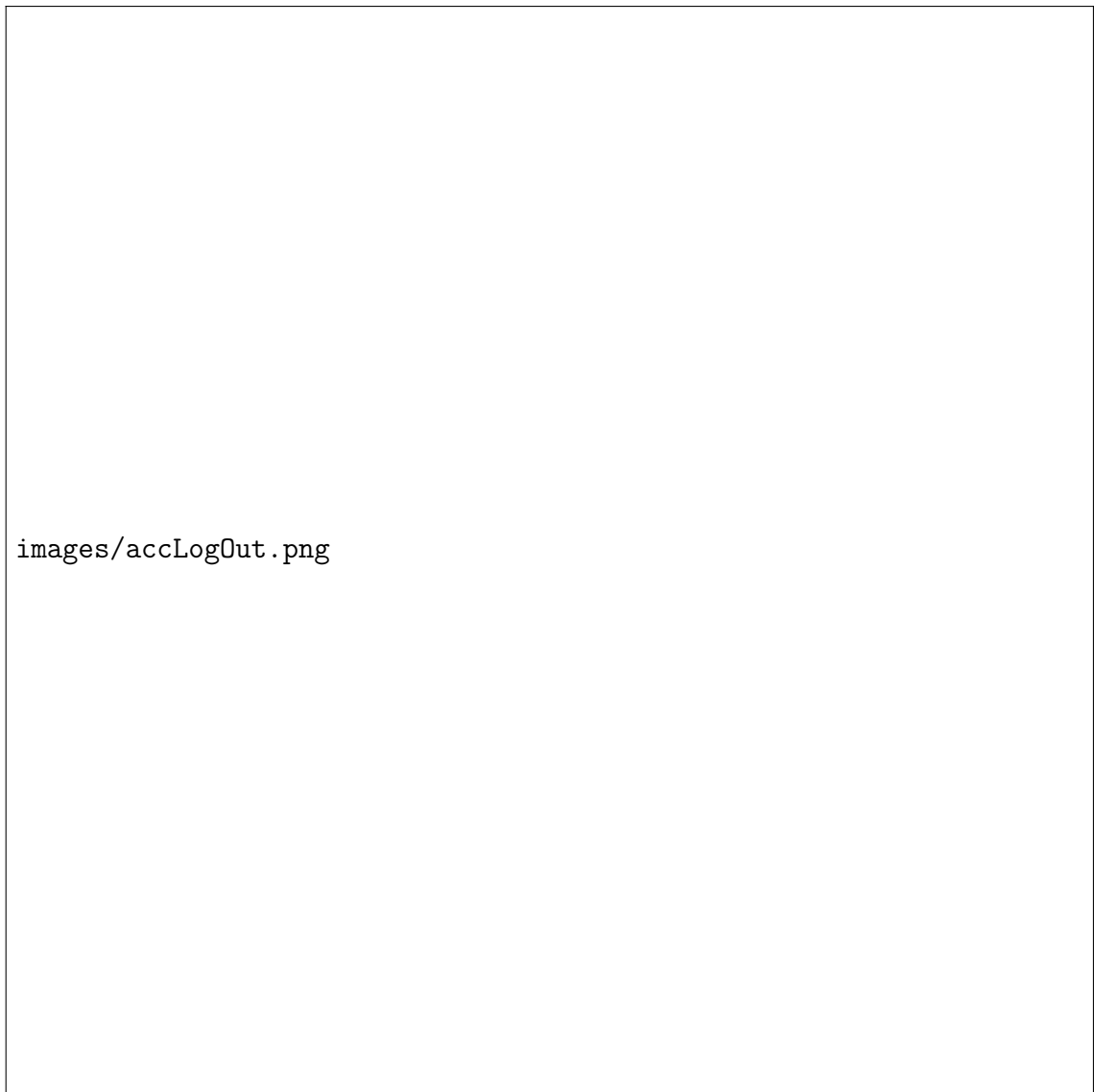
ENTER CONFIRM PASSWORD :

SUBMIT

CANCEL


Figure 18: Change Password Window.

- (b) **Logout :** On clicking logout button, it will close the main dashboard screen and goes to login window .



images/accLogout.png

Figure 19: Logout Window.

7.  **Settings** : connecting IP Address of ADE.
 - (a) **Change IP address** : when there is no connection with current IP address then change IP with valid communicating IP address (provided by IT sector) and port.

CHANGE IP ADDRESS

MAC ADDRESS : : : : : :

MAC ADDRESS

IP ADDRESS OF SLSC : . . .

PORT :

CANCEL **OK**

MACHINE INFO

Platform :

Version :

System Date :

Processor :

Machine :

System Time :

DNS SERVER :

CPU INFO

CPU Count :

CPU Per :

CPU Main Core :

Total RAM :

Available RAM :

Used RAM :

Free RAM :

OPEN CONFIGURATION

Figure 20: Change IP address.

- (b) **CPU Information** : Display CPU count, CPU percentage, CPU main core, total RAM, available RAM, used RAM, free RAM and RAM Usage.





Figure 21: CPU information.

- (c) **Machine Information :** On clicking logout button, it will close the main dashboard screen and goes to login window.

images/settingsMccuInfo.png

Figure 22: Machine information.

8.  **Restart MCCU** : Restarts BDE MCCU by asking confirmation to restart the MCCU.
9.  **ShutDown MCCU** : Shutdown BDE MCCU by asking confirmation to shutdown the MCCU.

0.9 MAIN DASHBOARD

समरSAT provides four tabs(main, satellite, monitor and diagnostics) to manage the ADE mechanical and electronics.

1. **ADE status :** This section provides information on antenna' current GPS location,(Date, Time, Latitude, Longitude) OSU parameters(Roll , Pitch , Yaw , Temperature) and total current.

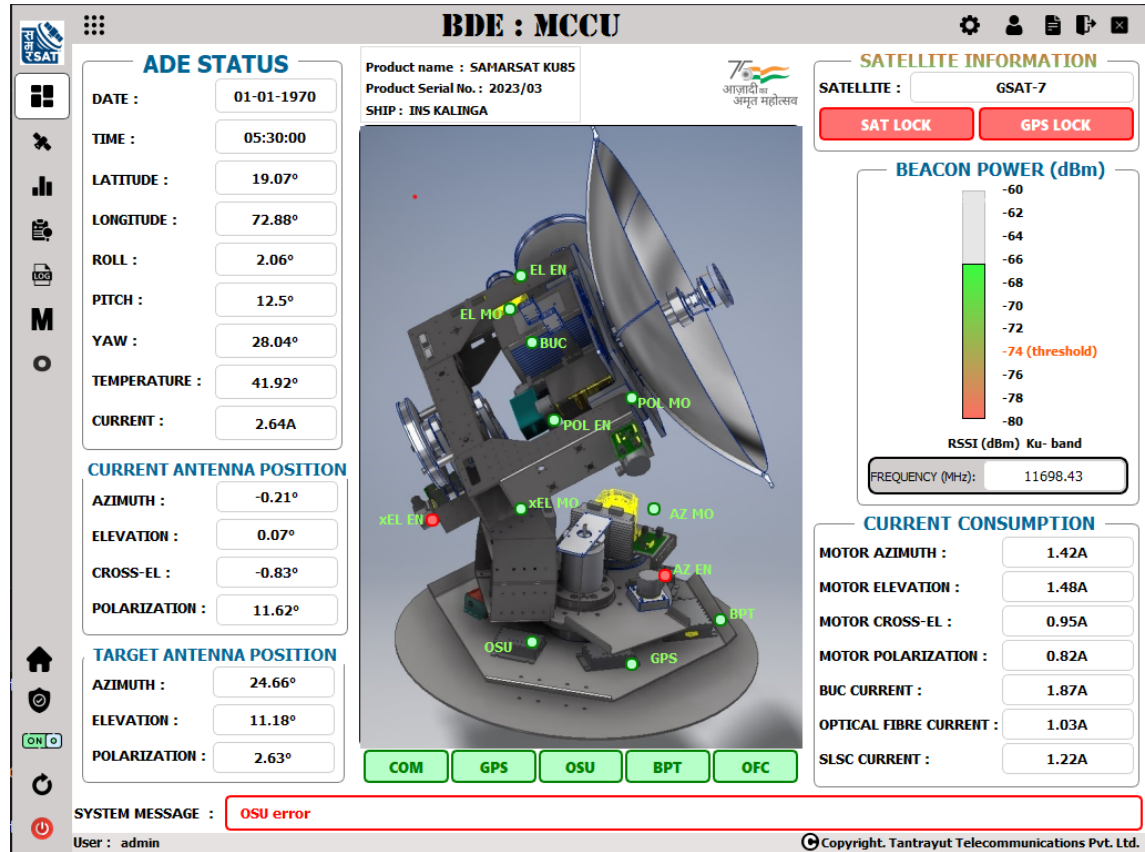


Figure 23: DASHBOARD

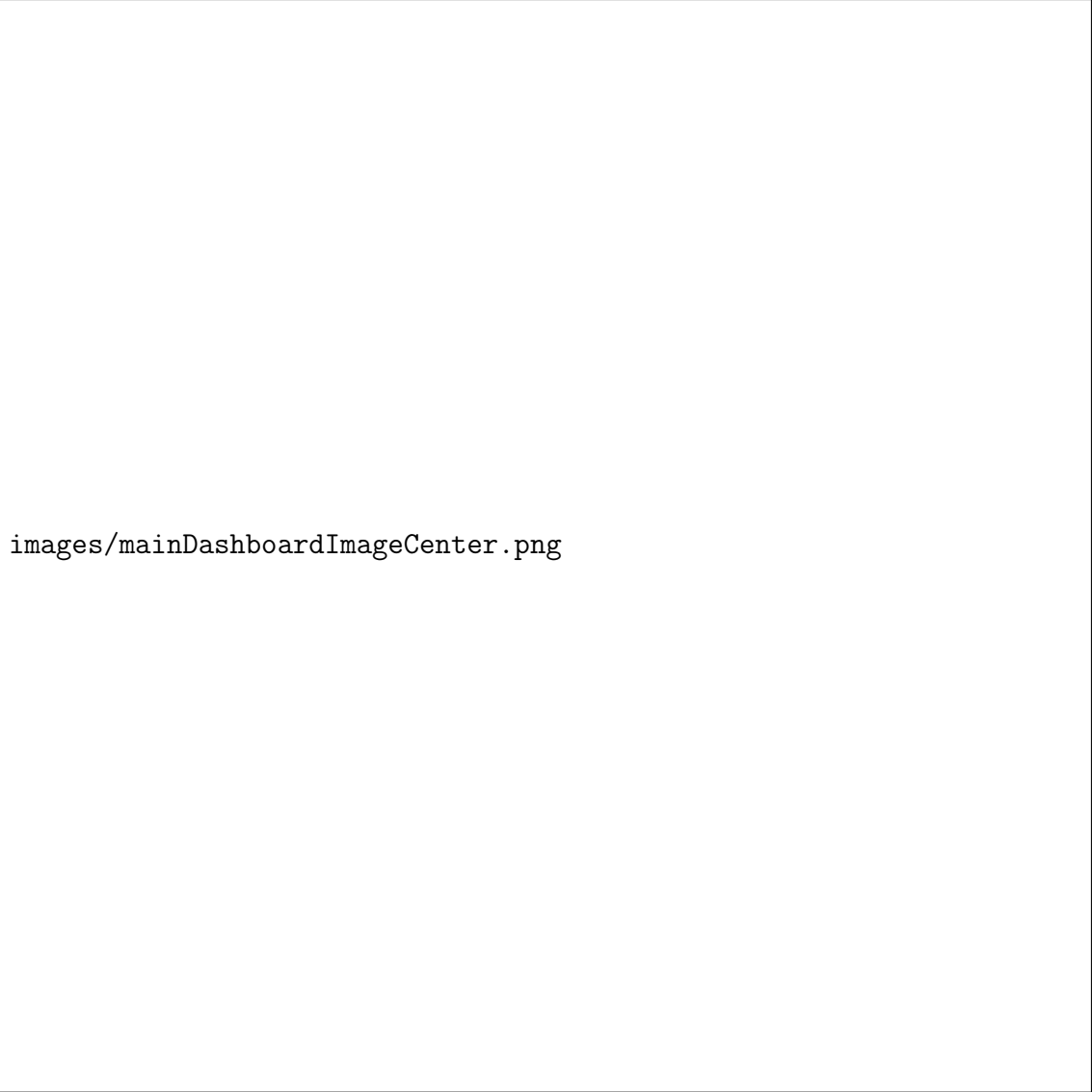
2. **Current antenna position:** This section provides information on antenna' current position i.e.,Azimuth , Elevation, Cross-Elevation and Polarization .
3. **Target antenna position:** This section provides information on antenna' current position i.e.,Azimuth , Elevation and Polarization.
4. **Satellite information :** This section provides information on locked satellite name.
5. **Beacon Power :** Display beacon power on power scale(threshold = -74 dBm) and beacon frequency(MHz).
6. **Current consumption :** Shows current consumption of azimuth motor, elevation motor, cross-elevation motor, polarization motor, BUC current, optical fibre current and SLSC current .
7. **All communication Status and lock status :**
 - **COM :** Shows communication between ADE and BDE; if there is a link, it becomes green; otherwise red.
 - **GPS :** Shows GPS is working and locked; if there is a link , it becomes green; otherwise red.
 - **OSU :** If SLSC is getting information from OSU, it becomes green; otherwise red.

- *BPT* :Beacon Power Tracker it becomes green when it is working properly; otherwise red.
- *OFC* :When optical fibre link breaks it turns red , else green.
- *SAT LOCK* :When satellite is locked it turns green , else red. It will only be locked when beacon power is above threshold as shown in figure.



Figure 24: BP below threshold

- *GPS LOCK* :When GPS is locked it turns green else red.
8. **Center model status :** Check if all the parameters are in range or not if any electronics or mechanical part is default or not working then circular status indicator turns red as shown in below figure.



images/mainDashboardImageCenter.png

Figure 25: Fault in mechanical part

9. **System Message** :Displays any changes or warning information regarding ADE.

0.10 SATELLITE TAB

This tab shows already existing satellite information in MCCU.

The screenshot displays the 'SATELLITE TAB' interface. On the left is a vertical sidebar with icons for home, settings, and other functions. The main area contains a table with the following data:

	Satellite Name	Beacon Freq.	Latitude	Longitude	Polarization	Norad Sat info
1	GSAT-15	11697.50	0	25	90	1 41028U ...
2	GSAT-9	11698.50	0	-69	95	1 42695U ...
3	GSAT-15	11697.50	55	25	90	1 41028U ...

To the right of the table are three buttons: 'LOAD SATELLITE', 'SET SATELLITE', and 'GET SATELLITE'. Below the table, there is a section labeled 'Norad Two Line Sat Info :'. At the bottom, a section titled 'CURRENT SATELLITE INFORMATION' contains a label 'SATELLITE NAME :' followed by an empty text input field.

Figure 26: SATELLITE TAB

1. **SET SATELLITE** : To lock a satellite, select the satellite from table then press set satellite button.
2. **GET SATELLITE** : To know the locked satellite, press GET SATELLITE button. Locked satellite name display below in current satellite information section.

0.11 MONITOR TAB

This tab shows real time plots.

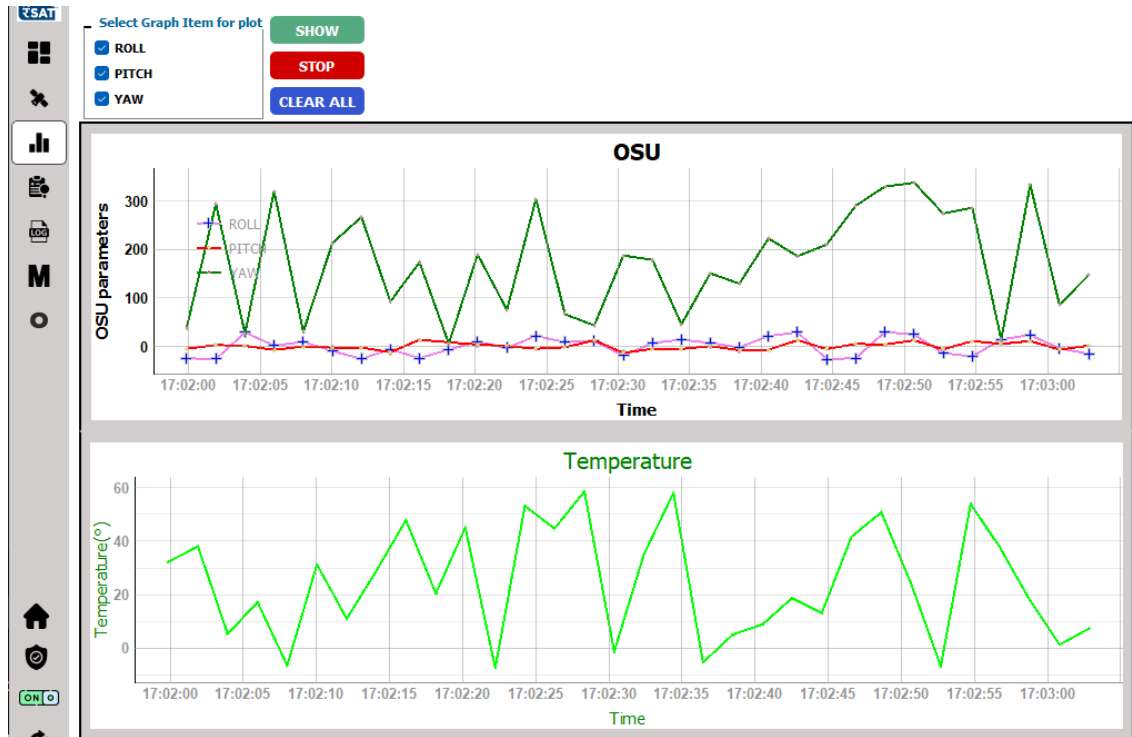


Figure 27: MONITOR TAB

1. Temperature vs Time
2. Current Consumption vs Time
3. Beacon power vs Time
4. Satellite/GPS lock vs Time

0.12 DIAGNOSTIC TAB

This tab shows ADE and BDE health status. "GREEN" indicates pass(in range) i.e all the ADE or instruments/electronics are working perfectly otherwise something is work with instruments and show "RED".

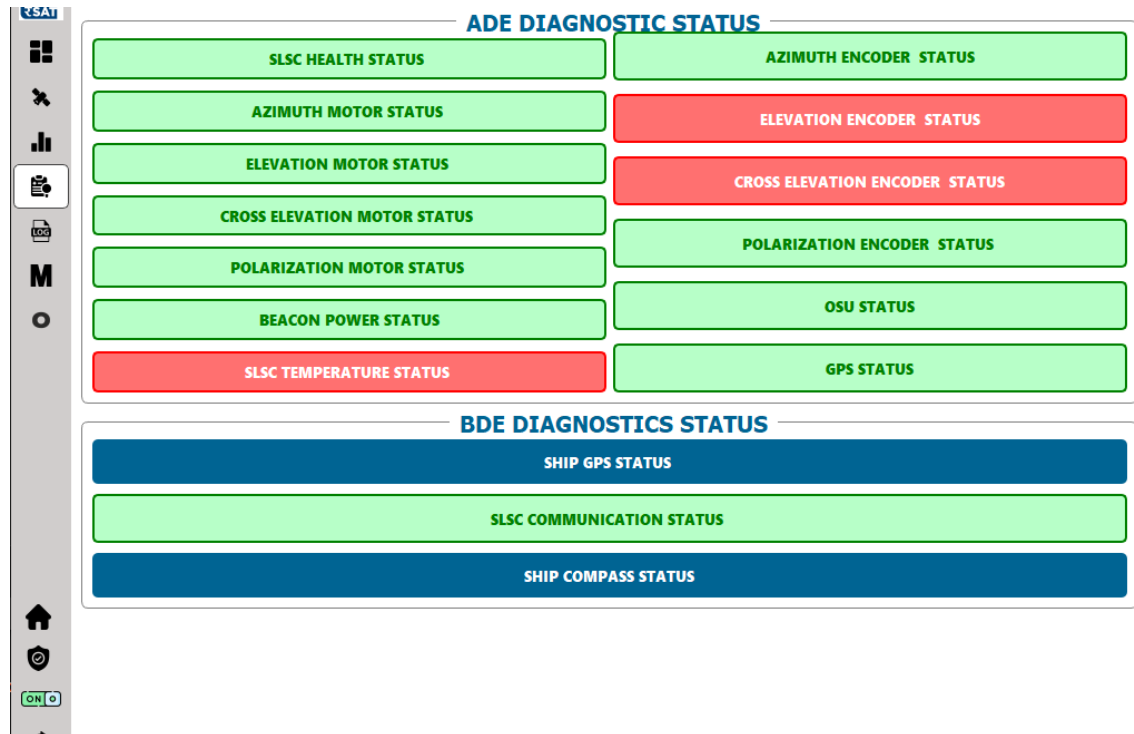


Figure 28: DIAGNOSTICS TAB

1. ADE DIAGNOSTICS STATUS :

- *SLSC health status*
- *Azimuth motor status*
- *Elevation motor status*
- *Cross elevation motor status*
- *Polarization motor status*
- *Beacon Power status*
- *SLSC temperature status*
- *Azimuth encoder status*
- *Elevation encoder status*
- *Cross elevation encoder status*
- *Polarization encoder status*
- *OSU status*
- *GPS status*

2. BDE DIAGNOSTICS STATUS :

- *SLSC communication status*