

User Manual for Cyber-Twin version 1.0

Group 7

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Abstract 1

The software developed automates the machines in the industry .The operator of that machine would feed the inputs about the usage and frequency which would then be sent into the cyber twin which records the inputs in the database and gives an analysis of the failure and graphs about the statistics of the machine usage in graphical interface . Also, the managers can see the ongoing and completed events.

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1. Introduction

1.1 Audience

The intended audience of this User Manual would be the people who would operate the machine and the managers. It also helps the users to get familiar with this software and its various functionalities.

1.2 Applicability

The Software is applicable to the data provided by the operators and the managers through the website or the tablet.

1.3 Purpose

The main purpose of this software is the storage ,display, and analysis of the data entered.

1.4 User Manual Usage

This manual can be used as an installation guide.. It will guide you through the flow of this software.

1.5 Conventions and Terms

- **SQL** - Structured Query Language , is a special-purpose programming language designed for managing data held in a relational database management system (RDBMS), or for stream processing in a relational data stream management system (RDSMS).
- **PHP**- is a server-side scripting language designed for web development but also used as a general-purpose programming language
- **Statistics**- is the study of the collection, analysis, interpretation, presentation, and organization of data.
- **Validation**- checking whether the username and password are present in the database.
- **Bar Graph**- is a chart that presents grouped data with rectangular bars with lengths proportional to the values that they represent.

1.6 If You Have A Problem

In case of any queries regarding the product, please mail the Developer Team at: cse140001013@iiti.ac.in . Our team will get back to you ASAP.

Thank You for buying our PRODUCT.

2. Installing Cyber-Twin

Import the SQL file and put details in the dbconfig.php file .

3. Using Cyber-Twin

3.1 Operators

The start screen will be the homepage. The navigation bar will contain a login button, which on clicking will direct you to the login page

The image shows a web application interface for 'Cyber Twin'. At the top, there is a dark navigation bar with the text 'Cyber Twin' in white. Below this, the main content area is titled 'Login'. It contains two input fields: 'Username' and 'Password'. Below the password field is a blue 'Login' button. The entire login form is enclosed in a light gray border.

Cyber Twin

Login

Username

Password

Login

Enter your username and password (which will be provided to you by the manager) on the login

page in the provided fields and press the login button. After validation you will be directed to the index page. If the details entered are not found an alert message will be displayed showing "username and password not found".

This situation arises because you've entered the wrong details ,so reenter the details. If the problem still persists then contact the manager.

The index page will display 6 buttons each of which upon clicking will give the following:



Production Stoppage



Job



Lunch/Tea



Precautionary Check

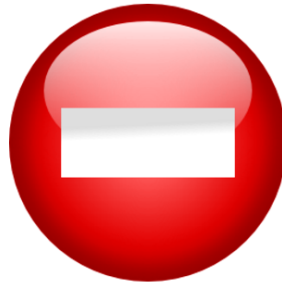


Machine Failure



Operator Unavailability

1 Production Stoppage - You will be displayed a list of reasons for the stoppage. Whenever the machine fails due to any of the reason **start the event**.



Production Stoppage

Cause

Raw Material Unavailable	Tools Unavailable	Tool Inspection	Tool Change	Coolant Refilling	Air Failure	No Demand
--------------------------	-------------------	-----------------	-------------	-------------------	-------------	-----------



Duration: 00:00:00

2 Lunch/Tea -If you wish to have a lunch/tea break press this button and **start the event** .



Lunch/Tea



Duration: 00:00:00

3 Machine Failure- Choose the cause of and **start the event**.



Machine Failure

Failed Unit

Drilling Unit	Milling Unit	Clamping Unit	Feed Unit	Power Unit
---------------	--------------	---------------	-----------	------------

Mode of failure

1	2	3	4	5
---	---	---	---	---



Duration: 00:00:00

4 Job - Select the job type and mode .Then **start the event**.



Job

Select Job Type

Normal	Rework
--------	--------

Select Component

GMI Cam Shaft	NALT Main Shaft	GMI Main Shaft
---------------	-----------------	----------------



Duration: 00:00:00

5 Precautionary measure -For precautionary measures **start the event.**

Cyber Twin

Logout



Precautionary Check

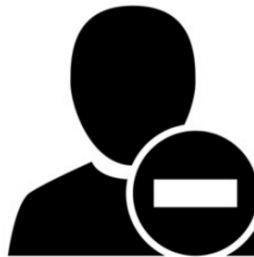


Duration: 00:00:00

6 Operator Unavailability -If you are unavailable then select the cause and **start the event.**

Cyber Twin

Logout



Operator Unavailability

Cause



Busy with official work

Personal needs

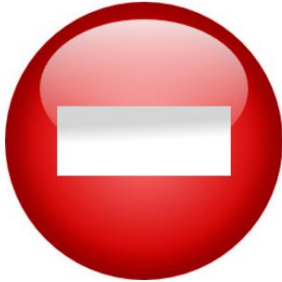


Duration: 00:00:00

Starting and stopping the event - Click the green start button for starting any event and the red stop button for stopping it.

Cyber Twin


Logout



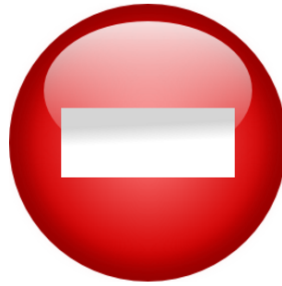
Production Stoppage

Cause

Raw Material Unavailable	Tools Unavailable	Tool Inspection	Tool Change	Coolant Refilling	Air Failure	No Demand
--------------------------	-------------------	-----------------	-------------	-------------------	-------------	-----------



Duration: 00:00:00



Production Stoppage

Cause

Raw Material Unavailable	Tools Unavailable	Tool Inspection	Tool Change	Coolant Refilling	Air Failure	No Demand
--------------------------	-------------------	-----------------	-------------	-------------------	-------------	-----------



Duration: 00:00:06

Note -After you have stopped the event you can go back to the index page by clicking on the cyber twin button on the navigation bar. You cannot go back until you have stopped the event.



Production Stoppage

Cause

Raw Material Unavailable	Tools Unavailable	Tool Inspection	Tool Change	Coolant Refilling	Air Failure	No Demand
--------------------------	-------------------	-----------------	-------------	-------------------	-------------	-----------



Started on 2016-04-18 17:54:51

3.2 Managers

The start screen will be the homepage. The navigation bar will contain a login button, which on clicking will direct you to the login page

Enter your username and password on the login page in the provided fields and press the submit button. After validation you will be directed to the index page. If the details entered are not found an alert message will be displayed showing "username and password not found".



The screenshot shows a web application interface. At the top is a dark navigation bar with the text "Cyber Twin" in white. Below the navigation bar is a white login form. The form has a title "Login" in bold. It contains two input fields: "Username" and "Password". Below the "Password" field is a blue "Login" button.

The index page will contain the following buttons which upon selecting will display the following



Timeline



Past Failure Data



Timeline All events



Line Plots



Simulation

1 **Timeline** - You can select the following options to view the timeline(enter data) for the events

1.1 Production Stoppage -Details of the production stoppage

1.2 Lunch/Tea

1.3 Machine Failure

1.4 Job

1.5 Precautionary measures

1.6 Operator unavailable



Production Stoppage



Lunch/Tea



Machine Failure



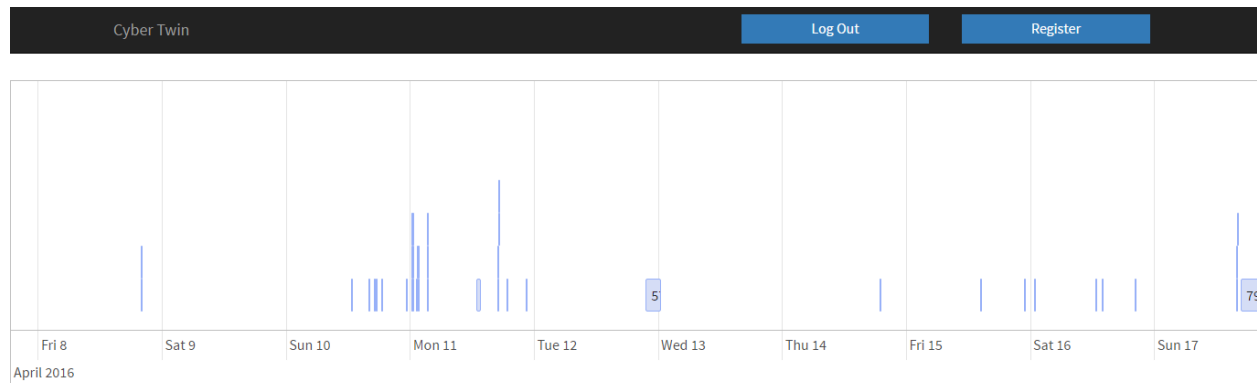
Job



Precautionary Check

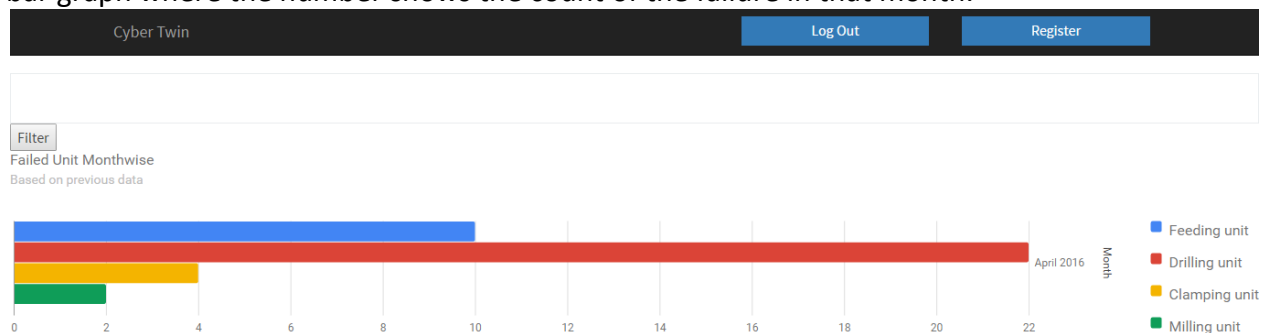


Operator Unavailability



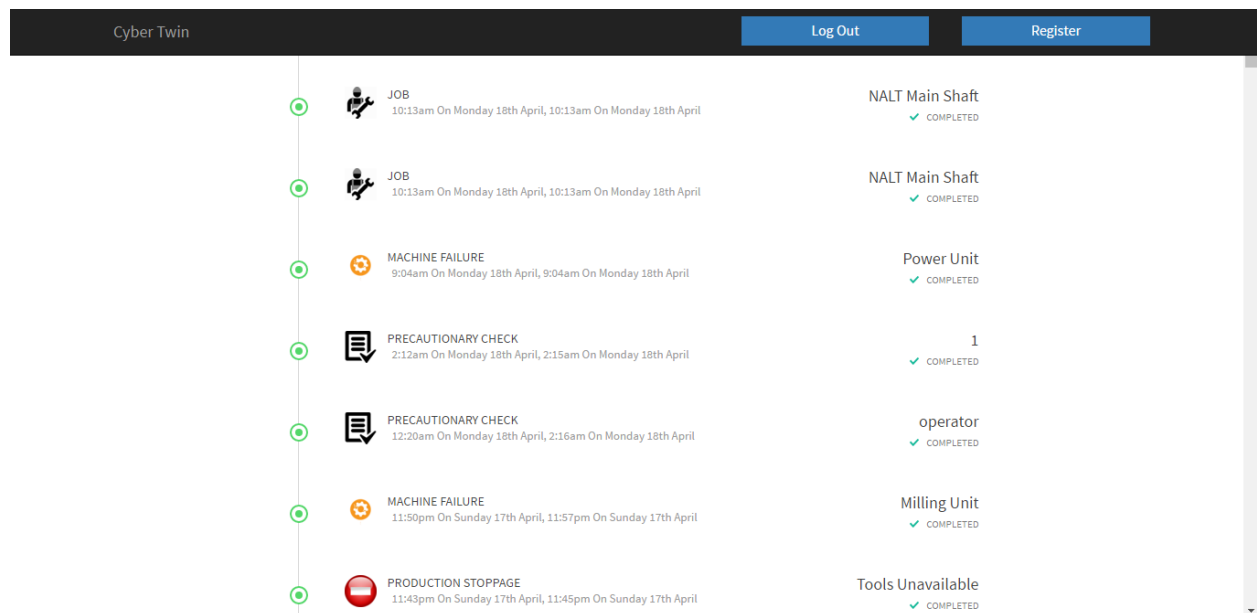
The details will be displayed on a graph showing when the events were inserted . You can zoom in or out to see the statistics on a monthly or yearly basis.

2 Past Failure Data - This shows the monthly count of the different units of machine failure on a bar graph where the number shows the count of the failure in that month.

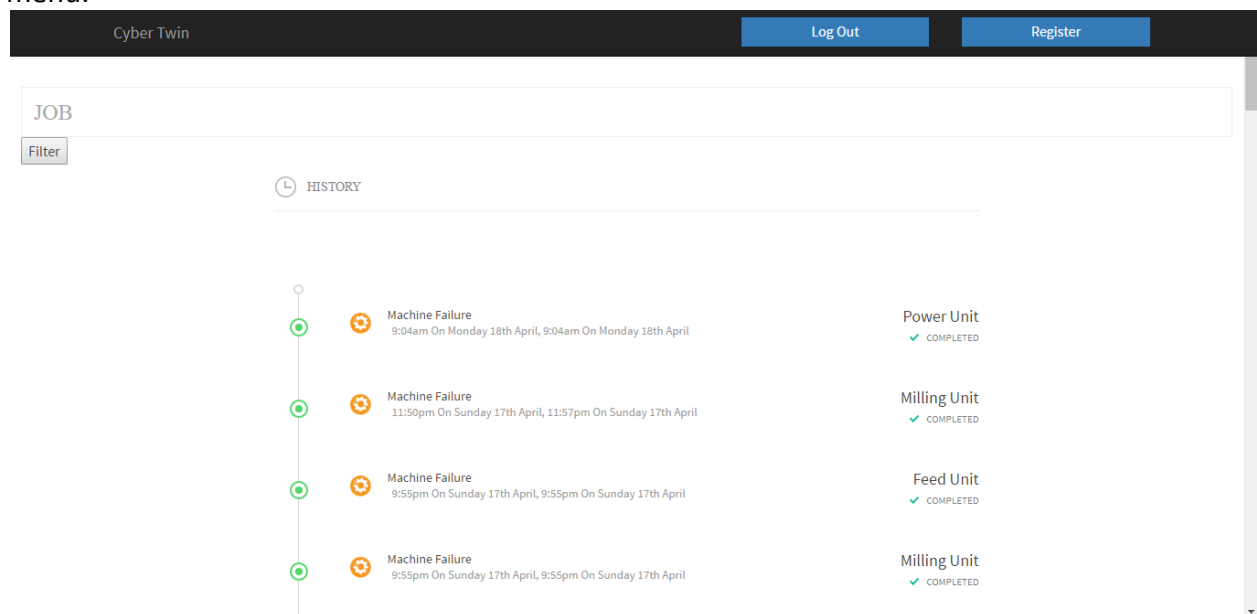


3 Timeline all events -

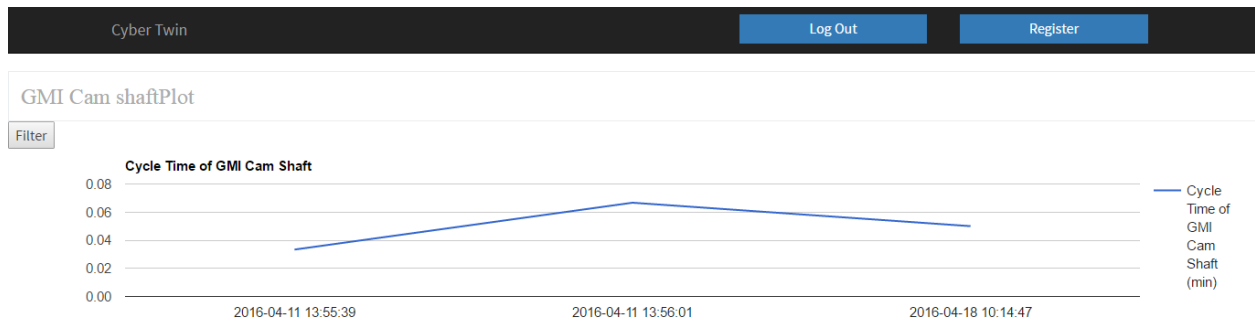
3.1 You can see the timeline of all events with the recent ones on the top ,also which operator entered the data.



3.2 You can filter the timeline according to the event type by selecting on the dropdown menu.



4 **Line Plots** - This gives a line plot of the events which you can select in the dropdown list, where each point on hovering indicates the time and duration of that event.



5 Register user - On clicking the register button on the navigation bar you can register a new operator or a manager. Enter the fields of username ,password and confirm password and select the user type. Press the submit button. If the password and confirm password are the same and the user is not found in the database then a message will be displayed showing "YOUR REGISTRATION IS COMPLETED...".If the user is already there then the message "SORRY...YOU ARE ALREADY REGISTERED USER..." will be displayed.

Cyber Twin [Log Out](#) [Register](#)

Registration Form

UserName

Password

Confirm Password

Operator

[Register](#)

5 Simulation- On clicking the simulation button you can see the predictions of the machine working using the past data . Pressing the open button will start the connection to the java server and clicking the send will send the data .Pressing the close will end the connection.

A graph will be displayed showing the predictions.

5 **ONGOING**- This shows the ongoing event which on clicking will display the timeline of all events with the ongoing event on the top.

