HYDROGRAPHIC SURVEY WING
Specialist Survey & Investigation Organization

JALANETHRA - 2nd STAGE DEVELOPMENT

USER REQUIREMENT SPECIFICATION

Submitted By

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INTRODUCTION

Hydrographic Survey Wing of the Kerala state is a specialist survey and investigation wing constituted with a view to cater the requirements of hydrographic investigations for the development of minor and intermediate ports of the Maritime state of Kerala. The wing is conducting works like, hydrographic investigations on all types of water bodies such as sea, ports, harbours, canals, reservoirs, rivers, lakes and ponds. Mostly the wing conducts pre and post monsoon surveys, pre and post dredging surveys for various developmental activities in this sector and to examine the quantitative aspects of dredging.

ABOUT JALANETHRA

Jalanethra Web portal is Hydrographic Survey Wing's prestigious e-governance application for the Total e-solutions in the Hydrographic Survey Wing. It includes various modules 1). e-Services platform, 2). Hydrographic Data Management Platform (HYMSYS) and 3). Theeram Mobile app for marine surveyors. The Jalanethra e-governance application got several appreciations and awards from both state and National. Including Skoch Award 2023.

Also we are planning to develop a Learning Management System for the overall management of our Hydrography Institute KIHAS and planning to integrate the system with Jalanethra in the future.

FIRST STAGE DEVELOPMENT

In the Jalanethra, the first module e-Services platform & Theeram mobile apps are developed by the startup company Gaude Business Solutions, Trivandrum and the Jalanethra - Hymsys module is developed by Kerala Digital University.

The first module e-Services provides a platform for Hydrographic Survey Wing clients to avail various HSW services through online mode. There integrated 11 number of services to the platform.

1. Hydrographic survey

2. Tidal Observation

3. Bottom Sample Collection

4. Dredging Survey

5. Hydrographic chart

6. Underwater Videography

7. Current Meter Observation

8. side scanning sonar

9. Topographic Survey

10. Sub Bottom Profiling

11. Bathymetry Survey.

2nd STAGE DEVELOPMENT - REQUIREMENTS

- In the first stage, no online payment module is integrated.

- The Hydrographic Data Management System (HYMSYS) and Jalanethra e-Services both platforms are working independently.

- Restricted view access to the customers for viewing HYMSYS charts online and also to request PDF charts online. Planning to add this service as 12th one.

- E-Surveys & e-Chartings are not included in the first stage development due to the insufficiency of funds.

- Real time Survey Vassal tracking not included.

- Real time interaction with field officers and concerned authorities not included.

2nd STAGE DEVELOPMENT - PROPOSAL

The proposed second stage mainly consists of 5 modules.

- **Work Diary** - for managing and monitoring daily survey activities of HSW officers through

Theeram App (Allotment of work/project, Issuing of AS etc..).

- **e-Surveying** - Monitoring of Survey activities conducted by the sub offices using any video streaming platform integrated module in Jalanethra. The ICCC units in MS Kollam and MS Beypore offices to be interconnected in the first stage.(Real time monitoring of survey activities)

- **e-Charting** – The survey outputs including raw data, Hypack processed data, Autocad Drawing and file sharing using SDC cloud platform and Jalanethra. The final output survey charts (Digitally signed) to clients will also be issued through the cloud storage links.

- **Survey Vessal Tracking -** Real time survey monitoring & assistance to survey crafts during surveying in sea up to 12 nautical miles is proposed. The survey vessels will be monitored through GPS based application also the support and assistance to Survey crews through Video streaming platforms is proposed.

- **HYMSYS & e-SERVICES INTEGRATION -** The Hydrographic Data Management System (HYMSYS) and Jalanethra e-Services both platforms are working independently. We can create many additional features/ services to clients, if we integrate these two applications.

2nd STAGE DEVELOPMENT – PROPOSAL IN DETAIL

WORK DIARY – THEERAM MODULE.

- Provision should be given for assigning work/duties to Sub offices by the superior officers. E/g: CH can assign work/duties to MS, MS can assign work/duties to AMS, and AMS can assign work/duties to Field Assistant as per the organization structure.

- The duty info will come to **My Duty** folder in Theeram App.

- When they click on view button, All Duty details, like Proceedings /orders if any, Duty time schedule, Boat details, boat crew members, Filed survey/ Original Survey details etc..

- When they accepted the duties, the next screen will be the duty status updation fields .. Eg: Joined duty at 9 am on 13.10.2023, Boat started, Total crew 5 nos, Field work started Any issues during surveys … like wise , all details pertaining to the duties can be entered

by the user.

- These details can be monitored by the Higher authorities in real time and give support /assistance to them.
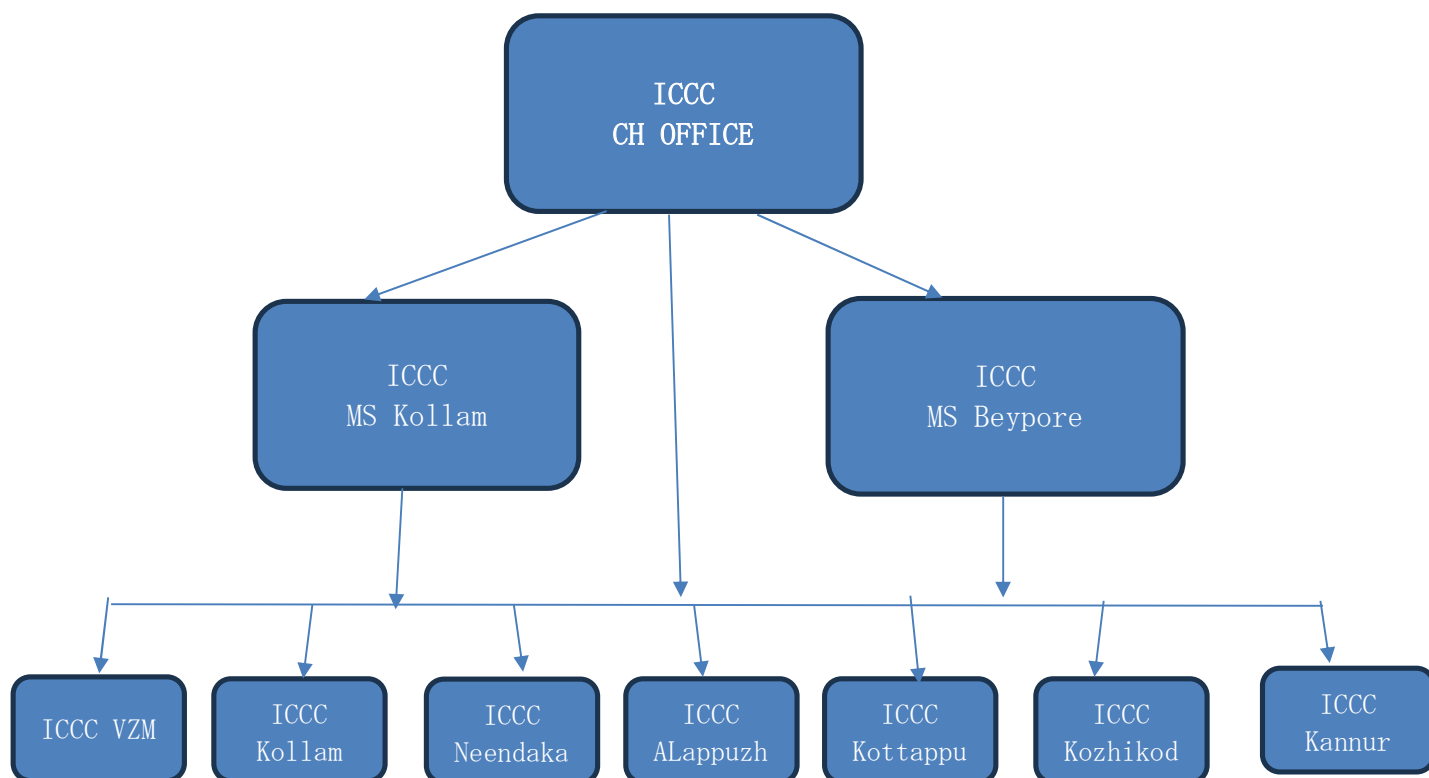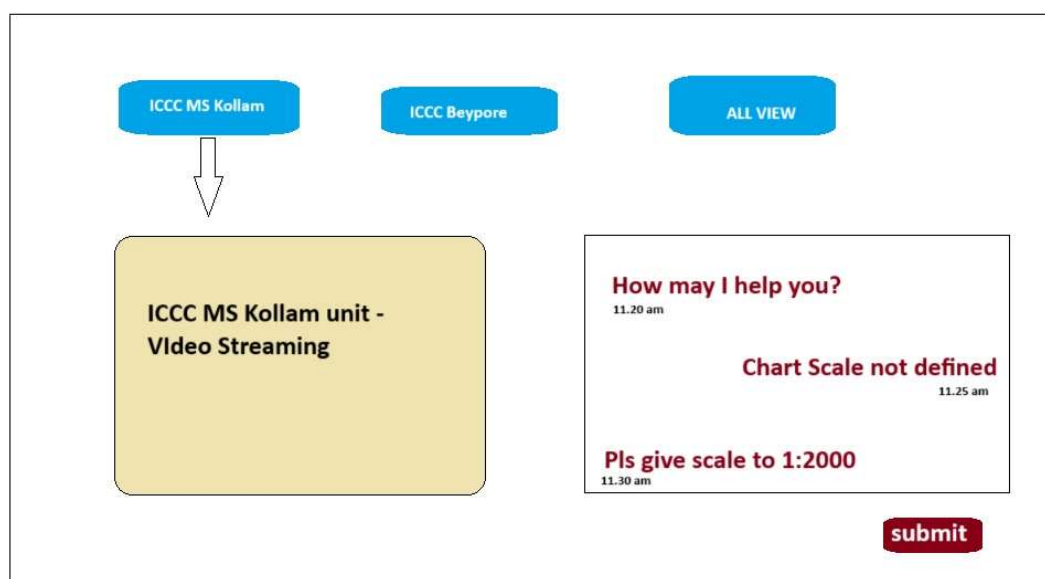

Proposed Interface of Work Diary

Also through the Reports module One can submit proposal for AS for Fuel, or sanction for OD or can apply leave permission through this.

E-SURVEYING.

An integrated Command and Control centre is functioning at the Head Quarters with Server machines, Interactive panel, 8 work stations under the monitoring of Deputy Hydrographer and Assistant Cartographer. The ICCC is aiming to monitor and provide assistance in the real time survey and post survey processing of survey charts and reports to sub offices. It is planning to start two ICCC sub units one at MS office Kollam and one at MS office Kozhikode. Planning to connect these ICCC unit through video streaming platform integrated with Jalanethra Portal.SO that the ICCC unit at Head quarters can view the ICCC unit activities of the sub offices.
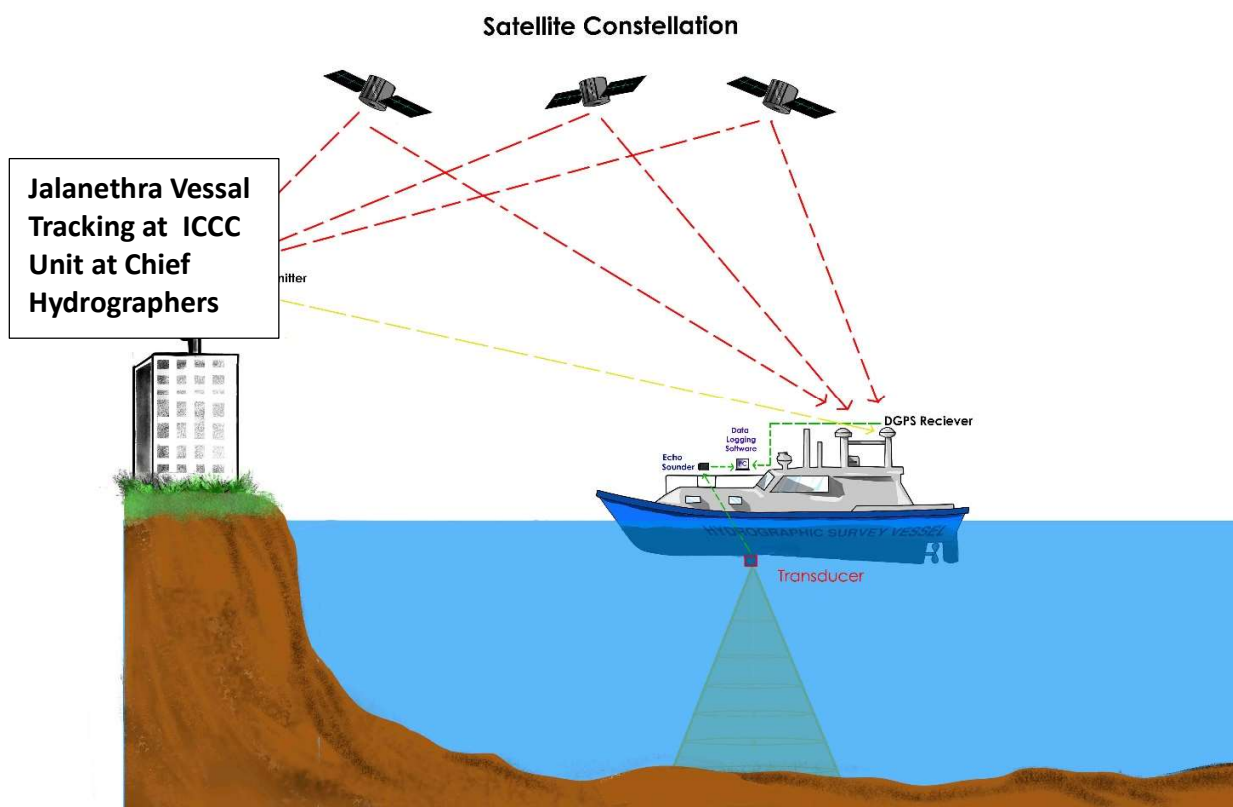
VIDEO BASED MONITORING FROM ICCC

E-CHARTING

The survey outputs including raw data, Hypack processed data, AutoCAD Drawing having more than 1GB size and cannot be sent through email or other platform. So the space allotted by SDC scan be utilised for this. Using this Jalanethra application, A sub office can upload files to the SDC cloud and share the link through the application. The final output to the client can also be shared like this. This will reduce the cost of Pendrives / CD's or any other hardware storage medium. This will reduce not only the costs, but also it's a secure medium to share data.

So an application in Jalanethra portal for arranging the charts in the cloud is to be developed. These charts can be viewed by the user and also should have the provision for digitally signing the chart using Digital Signature. The file sharing is done through the Jalanethra by connecting SDC cloud platform. The final output like survey charts (Digitally signed) to clients will also be issued through the cloud storage links.

SURVEY VESSAL TRACKING (GIS Integrated)

Real time survey monitoring & assistance to survey crafts during surveying in sea up to 12 nautical miles is proposed. The tracking of survey vessals and providing survey assistance to Marine survey officers from ICCC unit is to be planned. A GPS device is installed in each survey vessals for tracking and the tracking path is mapped over an OSM (Open Street Map). Necessary Geographical Informations also to be integrated with this module for taking easy assistance in decision making. Like depth at the area, undulations in sea bed, Sea boundary etc.. Also the Computer screen and cabin in the boat are shared with the ICCC unit computers. The officers can provide survey related information's, accident warning, other technical assistance are to be provided to the client through this.
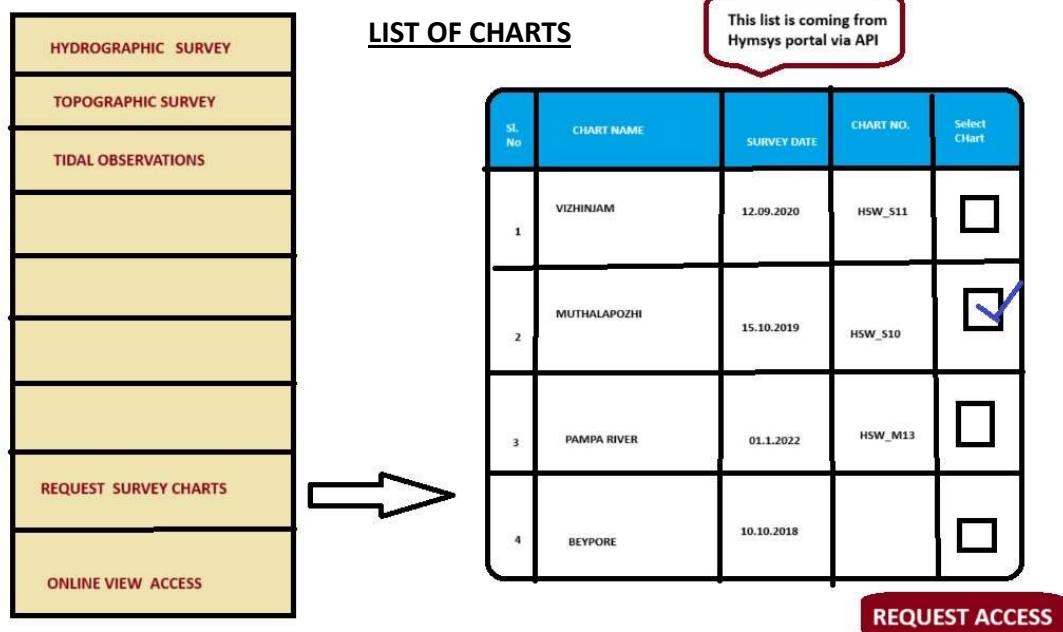
HYMSYS & JALANETHRA INTEGRATION

Now the Applications Jalanethra – eServices & Jalanethra – Hymsys both are working as independent platforms. Both are inter-related applications and it should be connected. The second stage development of Jalanethra is to interconnect these two platforms.By integrating these two applications we can add more services in the e-services platform 1).Request PDF chart 2). Request Online View of Charts.

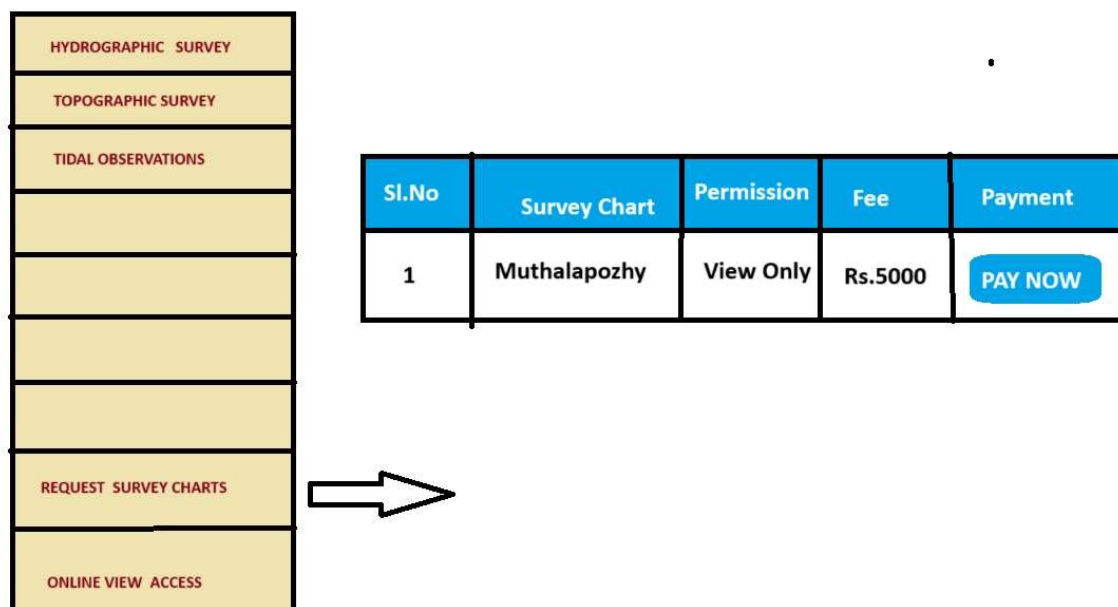## REQUEST PDF CHART SERVICES & VIEW ONLINE CHART SERVICE

By integrating HYMSYS with Jalanethra e-Services through API, the list of charts added in the HYMSYS portal is listed in the Jalanethra e-Services Portal. The Jalanethra authorised users can

request the PDF chart or Online view in HYMSYS portal by paying the required chart fee through the portal.

LIST OF CHARTS

This list is coming from Hymsys portal via API

Sl. No	CHART NAME	SURVEY DATE	CHART NO.	Select CHart
1	VIZHINJAM	12.09.2020	HSW_S11	☐
2	MUTHALAPOZHI	15.10.2019	HSW_S10	☑
3	PAMPA RIVER	01.1.2022	HSW_M13	☐
4	BEYPORE	10.10.2018		☐

REQUEST ACCESS

REQUEST SURVEY CHART SERVICE

HYDROGRAPHIC SURVEY
TOPOGRAPHIC SURVEY
TIDAL OBSERVATIONS
REQUEST SURVEY CHARTS
ONLINE VIEW ACCESS

Sl.No	Survey Chart	Permission	Fee	Payment
1	Muthalapozhy	View Only	Rs.5000	PAY NOW

ONLINE PAYMENT OPTION

CONCLUSION

We envisioned a full fledged total e-solution system through Jalanethra portal, which helps to provide all Hydrographic Survey Wings services online and also helps the department to manage the Survey activities & Survey data more systematically and efficiently.