INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
Powai, Mumbai 400076

Purchase Requisition No. 1000013395 (SRM/RFX No. 6100000242)

SPECIFICATION FOR DEVELOPMENT OF CoPT PROJECT MONITORING WEBSITE

1.   Scope

The scope of work includes development and deployment of an online web portal for project portfolio management and functioning as a progress reporting platform for individual projects, operated by stake-holders and hosted on a server at IIT Bombay.

The scope also includes providing technical support for keeping the website up and running and best performing for 24x7x365 during the maintenance period.

This specification presents the broad features envisaged in the proposed website. However, the finer details of the features desired in the website will be discussed and finalized with the firm getting the supply order for development of the website.

2.   Introduction

The proposed Portal is an online Project Monitoring and Reporting Platform for technical and financial progress of projects, their fund management and budget forecast for research projects at IIT Bombay and other institutes under different verticals and sub-verticals. The portal will also serve as a data base for various fields as detailed further in the specification. The website has to be modular, flexible and maximum **customisable**.

The website shall have a frontend web portal, *admin data access management tier* with certain website **customization privileges** (detailed further in the specification) and backend logic and APIs for interaction between database and frontend/ mid layer.

The stake-holders of the portal in descending progress reporting order are:-

(i)   DRDO HQ- DG (TM) (DGTM)

(ii)   DRDO HQ- DFTM (DFTM)

(iii)   Director, CoPT (DCoPT)

(iv)   Chief Technology Officer (CTO)

(v)   Node Coordinator (NC)

(vi)   Vertical Coordinator (VC)

(vii)   Lab Scientist (LS)

(viii) Principal Investigator (PI)

More stake-holders can be added in the respective hierarchical order as need arises.

3.   Objective

The objective of the web portal is to facilitate the following as an online platform:

(i)   Reporting of Technical and Financial progress in the designated hierarchy (Monthly/Quarterly/Annual) through regular update of Gantt chart and uploading of relevant documents, audio and video files pertaining to projects. Activity Delay alarms and notifications through SMS, email etc. to stake-holders.

(ii)   Technology Management i.e. assessing the progress in different areas of verticals, Mid-course suggestions incorporation; Individual and Consolidated Customisable Technical Progress Report Generation.

(iii)   Financial Management of projects, CoPT running expenditure, Civil works etc.; Customisable Financial Report Generation (ECS Mandate, Contingent bill, Statement of Accounts and Expenditure, Utilization Certificate, Annual Budget Forecast)

(iv)   Database of MoU/MoA, Review Meeting Minutes (Expert Committee, Pre-RAB, RAB and GC etc), Proposals, Projects, Manpower (SRF/JRF etc.), Equipment and facilities, PI, Reports, Research Papers etc.

(v)   Functioning as a notice board for sharing important information, events etc.

(vi)   Maintaining Compartmentalization of information among stake-holders

4.   Deliverables

The following are to be delivered as a part of standard supply under this work order:

(i)   Front-end web portal

(ii)   Back-end logic and APIs

(iii)   Training Module with Video Demonstration

(iv)   Complete software lifecycle documentation

(v)   Requirements, Design, Development/ Construction, test, Management, User-manual and application development.

(vi)   Source code of frontend and backend with documentation, API level documentation, dependencies, build tools and Make files

5.   Time for Completion

The scope of work is to be completed in a span of **04 months** from the date of supply order.

6.   Technical Specifications

The website will provide the access to following stakeholders/ group of **stakeholders** as per the privileges defined in this specification document:

(i)   DRDO HQ- DG (TM) (DGTM)

(ii)   DRDO HQ- DFTM (DFTM)

(iii)   Director, CoPT (DCoPT)

(iv)   Chief Technology Officer (CTO)

(v)   Node Coordinator (NC)

(vi)   Vertical Coordinator (VC)

(vii)   Lab Scientist (LS)

(viii) Principal Investigator (PI)

More stake-holders can be added in the respective hierarchical order as need arises.

The general and indicative layout of the sample web pages is annexed in **Annexure-A** indicating the fields and privileges available to each stake holder. These are indicative and shall be finalized after due discussion with the development agency during actual development.

The general features of the portal are listed under the following headings:

A.   Registration, Approval and Sign-in process:

Process flow:

Stake-holders Apply for registration → Approval by Director, CoPT → first time login by stake-holders → change of password → save changes → Regular login

Salient features/ requirements:

(i)   Stake-holders to use their official email-IDs for registration.

(ii)   A One Time Password (OTP) based authentication through mobile and shared password through official email id of stake-holders to be there for registration and login.

(iii)   The user ID and Password will be sent on their official email after due verification.

(iv)   Captcha Code will be required for registration as well as during Sign-in.

B.   Profile of Stake-holders

Process flow:

Login by Stake-holders → update of profile → save changes

Salient features/ requirements:

(i)   Stake-holders will be able to update certain field of profile including changing the login password

(ii)   Project data will be entered in their profile section by CTO, CoPT

(iii)   PI, LS, VC and NC will only be able to view data pertaining to their projects only in the profile section.

(iv)   CTO, DCoPT, DFTM and DGTM will have the viewing rights of all the project related data.

C.   Project Progress Reporting:

Process flow:

Update of project progress by PI → forwarding of report to NC and VC/LS → receipt of comments by PI from NC and VC/LS → Modification in report by PI if required else, → forward report to NC → NC forwards report to DCOPT → DCOPT forwards report to DFTM → DFTM forwards report to DGTM

Salient features/ requirements:

(i)   The report is inclusive of technical as well as financial progress. The PI can support the progress report with additional comments/documents/audio/video files in the remarks column of report forwarding page. The view of technical progress (Gantt chart) and Financial Progress will be available on a single web page pertaining to a particular project. The report forwarding page to have functionality for inserting comments while forwarding/ receiving progress report.

(ii)   The technical progress is represented in Gantt chart pertaining to the project. The Activity, sub-activity, milestones and timelines etc will be prepared by PI and handed over to CTO for feeding the data in the portal which will be visible to PI. The progress part only will be edited by PI on regular interval.

The right to assign the frequency of update will lie with CTO.

(iii)   Based on the recommendation of reviewing committee (pre-RAB, RAB, GC), any update/addition/deletion in the activities/sub-activities/milestones/timelines etc will only be made by CTO in the Gantt chart.

(iv)   Financial progress of the project is represented in terms of sanctioned funds, funds released, expenditure made, commitments and balance funds in the tabulated form and regularly updated with uploading of proof of expenditure/ bills etc. The frequency of update of financial progress is same as that of technical update. The field of Funds sanctioned and funds released shall be entered/edited only by CTO whereas the expenditure and commitments will be entered by PI; the balance shall be accordingly calculated in the expenditure data sheet.

The right to assign the frequency of update will lie with CTO.

(v)   The graphical representation of financial progress (bar chart/ pie chart etc.) will be automatically generated and included in the progress reporting.

(vi)   The provision for customisable report generation to be provided.

D.   Gantt Chart:

Process flow:

Entry/ update/ addition/ deletion of activities/ sub-activities/ milestones/ timelines by CTO → Progress update by PI → forwarding of report to NC and VC/LS → receipt of comments by PI from NC and VC/LS → Modification in report by PI if required else, → forward report to NC → NC forwards report to DCoPT → DCoPT forwards report to DFTM → DFTM forwards report to DGTM

Salient features/ requirements:

In addition to the points covered in **Para 6 C,** the following to be considered in the Gantt chart**:**

(i)   Activities, sub-activities, milestones, timelines (tree type structure) for each project will be submitted by PI and entered and later edited into the Gantt chart by CTO; PI will only be able to edit the progress part of it. Gantt chart will be in a tree type structure which can go on for many levels.

(ii)   Day-wise, Week-wise, Month-wise Granularity to be there in the Gantt chart and this filter can be selected by each stake-holder.

(iii)   A colour coding scheme to be developed for assigning colour to activity/ sub-activity/ milestone etc. indicating its Severity/ criticality and Priority.

(iv)   A separate colour coding scheme to be developed for indicating the actual percentage of progress.

(v)   Facility to view the progress by varying the timeline and comparing the same with a given timeline to be there. A drag button/ timeline slider along with date entry to be there for selecting timelines.

(vi)   Functionality for entering Comments/Remarks with uploading of supporting documents by PI to be there while updating the progress.

(vii)   The provision for customisable report generation to be there.

Project Finance Module:

Salient features/ requirements:

In addition to the points covered in **Para 6 C (iv) & (v),** the following to be considered in the finance module**:**

(i)   The three different head under finance module will be - Project, Running and Building Expenditure. Under each head the sub heads will be Funds sanctioned, Funds released, Commitments and Balance under different categories.

(ii)   The functionality to insert/edit/delete Heads, sub-heads and categories to be there with nomenclature editing. This functionality access to be there with CTO only.

(iii)   CTO shall have the access to enter data under sub-heads- Funds sanctioned, Funds released, Commitments under different categories for CoPT Running and CoPT Building Expenditure.

(iv)   CTO shall have the access to enter data under sub-heads- Funds sanctioned and Funds released under different categories for Project head. Expenditure and Commitments will be entered by PI for individual projects, Balance funds will be auto calculated.

(v)   The data consolidation heads of projects, running expenditure and building expenditure under different sub-heads and categories will be auto generated and consolidated Data-sheet will be available only to CTO, DCOPT, DFTM and DGTM for viewing. The view modes can be Monthly, Quarterly, half yearly and yearly.

(vi)   The PI, NC, VC and LS will be able to view financial data pertaining to their projects only.

(vii)   The module to be designed in a excel like format for inserting additional rows and columns as required in future and functionality for auto generation of charts and graphs of financial data.

(viii)   Facility to view the financial data under each head, sub-head and category by varying the timeline and comparing the same with a given timeline to be there. A drag button/ timeline slider along with date entry to be there for selecting timelines.

(ix)   Functionality for entering Comments/Remarks with uploading of supporting documents by PI to be there while updating the financial progress.

(x)   Notification through SMS and email to be there for under/ over expenditure, delay in expenditure and delay in reporting of financial progress to concerned stake-holders. Right to customise the notification will lie with CTO.

E.   Workshop/ Conference Management Portal

A dedicated portal for Workshop/ Conference Management which should include registration/ paper submission and event notification related to workshop/ Conference to be created.

F.   Notice Board:

Salient features/ requirements:

The functionality of a Notice Board for dissemination of important messages, information on upcoming events, Calendar, review schedule, closing date etc to be there for all stake-holders. This will also have facility for downloading forms/ formats etc for the benefit of all the stake-holders. The upload of information and files to this section will be done only by CTO. The facility to send email notification to certain stake-holders/ group of stake-holders to be provided along with one-to-one communication channel with CTO.

7.   Other Functional and operational requirements

(i)   The complete lifecycle of a project (proposal, sanction, ongoing, PDC extension, completion, closure/ short-closure etc.) to be visible with current status to all stake-holders pertaining to their project. The status of the project will be marked by CTO only.

(ii)   When a project is marked complete, all relevant documents to be uploaded by PI (project proposal, research papers, reports, completion report, financial reports etc.).

(iii)   After the completion/ short-closure of a project, the respective PIs will be restricted from using the platform.

(iv)   Provision for Change/transfer/ resignation of PI to be provided.

(v)   Website will have nil visibility to search Engines.

(vi)   Intended institute / establishment only to access the website by providing White-listing of users (sub-nets). A user interface for the same to be provided for access only by CTO.

(vii)   System to generate auto message (SMS and email) to CTO and further to Director, CoPT to inform delay milestone. Project delay message also to be auto generated for information of PI and other stake-holders. Frequency of messaging will be decided by CTO.

(viii)   Right to customise number of stake-holders as per the need to be there with CTO.

(ix)   Maximum customisation of the field to be there pertaining to Research Verticals, technology gaps, projects, PI, Reporting formats and information resolution etc.

8.   Server Specification

Suitable server with required OS, Memory, storage, processor capacity will be provided in the IIT Bombay premises and specification of the same will be shared to the firm when the work order is finalized with the development agency.

9.   Technology Stack

The development agency shall state in the offer the technology stacks (Operating System Web Server Software, Database Engine, Programming Language etc.) which will be used for developing the fully functional website.

10.   Acceptance

A **Quality Assurance Plan (QAP)** and **Acceptance Test Plan (ATP)** will be submitted by development agency before starting the website development work for review and finalization by a committee comprising of rep from Development agency, IIT Bombay, CoPT and DFTM. The committee will also oversee the progress of website development and give final nod regarding completion of the work order. A beta-version of the website shall be put up for rigorous review by the committee.

11.   Security and Audit

The development agency to plan for secure development of content, firewall between the user and the web server, the firewall between the content up-loader and the web server and a watchdog to monitor and raise alerts of information attacks. In addition, following to be done pertaining to Security and Audit:

   (i)   Penetration Testing.

   (ii)   SSL Implementation for secure calling of APIs and data encryption in transit.

   (iii)   Data encryption in database and while sending as well as receiving by the user.

   (iv)   Data Logging and Continuous Backup for emergencies (customisable frequency, to be decided by CTO).

   (v)   Failsafe measures and implementing abuse prevention safeguard.

   (vi)   Audit By Cert-in empanelled agency.

   (vii)   Any other measure not mentioned in the specification but necessary for proper functioning of the website for the intended use.

12.   Maintenance

The development agency to provide all technical support for best performance of the website for a period of **03 years** from the date of acceptance of the website for operation. The maintenance support to include providing minor modification support, Scripts for regular patch updates and OS upgrades as well. The points not covered in

the scope of this specification but required for best performance of the website to be thoroughly considered for providing maintenance services.

13. Non-disclosure Agreement

A Non-Disclosure Agreement to be signed between Development Agency and CoPT/ IIT Bombay before starting the website development work.

14. Intellectual Property Right

The intellectual Property created vide this work order whether or not legally protected, shall be owned by CoPT. The development agency shall not publish/ present any information pertaining to the development work before seeking written consent from Director, CoPT. CoPT shall not be responsible and shall not accept any liability for infringement, innocent or otherwise, by development agency of the intellectual property rights of third parties. The term of this provision shall expire only after written consent of Director, CoPT.

15. Technical Bid

The development agency to submit the technical bid against the requirement expressed in the paras above (1-14) in this specification and clearly state their compliance/dissent against each. The development agency can highlight any additional necessary feature which might be useful during the operation of the proposed website.

16. Pre-Bid meeting

With the view to clarify bidders of all the proper information needed to assist them with submitting a bid or proposal that responds to the requirements of CoPT. A pre-bid meeting will be arranged 10 days before the due date for submission of bids. The venue for the meeting would be at 10:00hrs in the CoPT office on the ground floor of the main building, IIT Bombay.