



होमी भाभा विज्ञान शिक्षा केंद्र
HOMI BHABHA CENTRE FOR SCIENCE EDUCATION
टाटा मूलभूत अनुसंधान संस्थान
TATA INSTITUTE OF FUNDAMENTAL RESEARCH

भारत सरकार का नाभिकीय विज्ञान एवं गणित का राष्ट्रीय केंद्र एवं समविश्वविद्यालय

*National Centre of the Government of India for Nuclear
Science and Mathematics and a Deemed University*

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Ref : HBC/PUR/EOI/4121/

August 13, 2018

Sub : INVITATION FOR EXPRESSION OF INTEREST

Sir,

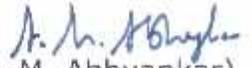
Homi Bhabha Centre for Science Education, TIFR invites Expression of Interest (EOI) for a software development consultant/company to create a mobile friendly UI/UX (responsive) for an already developed web platform.

The EOI Document containing the introduction to the software platform, general requirements & scope of work is enclosed.

Those interested may apply in the prescribed format. EoI may be sent in a sealed envelope superscribed "Expression of Interest for Software development", so as to reach the Head Administration, Homi Bhabha Centre for Science Education, on or before **August 23, 2018 by 1600hrs.**

Thank you,

Yours faithfully,


(A.M. Abhyankar)
Head, Administration

**HOMI BHABHA CENTRE FOR SCIENCE EDUCATION
TATA INSTITUTE OF FUNDAMENTAL RESEARCH
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1. Name of bidding agency / firm/individual :
2. Headquarter :
3. Address for Correspondence :
4. Past experience of the firm :
5. No. of years experience in Software Development :
6. Professional strength :
7. No. of full time professional engaged :
8. Location of offices in other parts of India, if any :
9. Financial Strength :

(Annual Turnover for last three years, enclose audited financial statements)

10. **Criteria for Eligibility:**

1. Experience of development of software on a git repository (gitlab.com or github.com), evidenced by companies git repository.
2. Experience with full free and open source software stack, Python/Nodejs/Clojure, HTML5, CSS3. Evidenced by showing the online code repository.
3. Capacity in Project management through online collaboration and task management tools.
4. Experience of working with web components, Reactjs or Angular to generate responsive pages.

Development of a Progressive Web App and Mobile Client for the gstudio Platform

The Gstudio Platform is being developed in house at the gnowledge lab of HBCSE and is deployed to serve both students, teachers and educationists. Currently there are over a thousand deployments in schools and three major online deployments of the platform:

1. <https://nroer.gov.in/> National Repository of Open Educational Resources
2. <https://demo-clix.tiss.edu/> Courses Repository of Connected Learning Initiative (CLIX) of TISS
3. <https://metaStudio.org/> metaStudio, an online academy for collaborative activity based learning, managed by gnowledge lab.

All the above instances run on the same codebase. The code is mostly Python, developed on Django framework. All the code is regularly updated on <https://github.com/gnowledge/gstudio/>. The deployed sites either run on master branch or beta branch. The code is copyrighted, HBCSE, released under Affero GPL v3.

Details of gstudio Platform Architecture

1. The gstudio is developed as an integration of few other free and open source platforms:
 - (a) **gstudio**: core engine for knowledge networking and organizing <https://github.com/gnowledge/gstudio>. Gstudio is developed inhouse at gnowledge lab.
 - (b) **mastadon**: is a free and open source software used for user registration, microblogging as in twitter and notifications. <https://github.com/tootsuite/mastodon>.
 - (c) **discourse**: is a free and open source software used for blogs, forum/bulletin board and mailing list style discussion <https://github.com/discourse/discourse>.
2. gstudio uses a graph database developed in house based on GNOWSYS specification (<https://www.gnu.org/software/gnowsys/>). The following architecture is used to create a collaborative content management model for curating a digital library, organizing resources to make a website, organizing resources for delivering online courses.
 - (a) The following types of content types are available in gstudio:
 1. **Users**: members who register in the site.
 2. **Workspaces**: is a content type that holds all other content types. All content is published only in one or more workspaces. The following types of workspaces are available in gstudio:
 1. Public Workspaces where registered users can become members.

2. Private Workspaces where registered users can become members, but other members of the platform have no knowledge of their occurrence.
3. Personal Workspaces are created for each user of the platform.
4. Draft Courses are CMS (Course Management Systems). These are customized public or private workspaces with specialized apps to create a course collaboratively.
5. Announced Courses are LMS (Learning Management Systems). These are workspaces used for delivery of a course.

In a workspace, users can create pages, organize them into a navigable tree, tag and classify them, upload files into folders, mark them as resources, add metadata to files and pages, write blogs, initiate a discussion, comment on other resources of other members, rate pages, files, posts and replies and manage a topic map.

3. **Resources:** Resources is a general category under which any digital resource like pages (resources created online in the platform) and files (resources created on another computer and uploaded in the platform). Resources are published always in a workspace.
4. **Pages:** Pages are further divided into wiki, blog, help and glossary pages. Wiki pages can be edited by all members, blog pages only by the member who posts the article, help pages only by the site administrator. Glossary pages are created as links to terms or expressions used in the content to provide help.
5. **Files:** Files are uploaded and classified based on mimetype. Popular media types like PDF, JPG, GIF, PNG, MP3, MPEG, OGG, WEBM, HTML, EPUB, etc. have viewers, while other files are stored for curation. All files can be downloaded. Files are organized into Folders/Collections. Some other special files used in science and mathematics education like GeoGebra, PheT, Logo, NetLogo etc. are also supported.
6. **Topics:** Topics are organized like a tree to create a hierarchical organization of resources. When the platform is used for academic purpose the leaf-nodes of a topic map become learning objectives.
7. **Posts and Replies:** Posts are specialized pages seeking feedback from users as replies.

General Requirements

1. A responsive web client using React (<https://reactjs.org/>) or Angular (<https://angularjs.org/>) to be developed that should fluidly adjust UI/UX elements based on the client machine (mobile, tablet, PC) display size. The choice of technology is based on the expertise of the consulting company.
2. Using the above templates, a mobile client to be developed, compiled and made compatible for most popular smart phones (including Android, iPhone, Windows Mobile).
3. The mobile client will have local storage for some designated data to be used without Internet connection.
4. The project should use HTML5, CSS3 and freejs (<https://www.fsf.org/campaigns/freejs>).

5. The web client project could use either Python or Node based on the expertise of the consulting company.
6. The project development will happen at a git repository, either github.com or gitlab.com.
7. The project team of the consulting company and the developers of gnowledge lab will coordinate the work from <https://team.gnowledge.org/>.
8. This development does not include backend and API development. This will be provided by gnowledge lab, HBCSE. When required new functions can be included in the API, and this is the responsibility of gnowledge lab.
9. At no stage of the project, proprietary code will be used in this project.

Specific Requirements

What are the specific tasks to be performed by the consulting company to do:

1. Create a SRS for the two phases of the project based on the deployed platforms and consultation with the team at gnowledge lab.
2. Make mockups keeping in mind the functionality and information architecture of the platform.
3. Create a mobile friendly progressive web app using the provided APIs.
4. Create a mobile App embedding the progressive web app porting to an Internet Browser, Android, iPhone and Windows mobile.
5. Create an automated unit-testing and functionality testing functions.
6. Generate automatic documentation of the project.

Special Features Required in the Web and Mobile App

Apart from everything that the existing platform does, the web and mobile app are required to have the following additional features:

1. Local storage of the downloaded content with a set storage limit.
2. Sync with the server for data updates
3. Check with git repo for new releases and update the version.