

TERMS OF REFERENCE (TOR)

LOCAL SYSTEM DEVELOPER

DEVELOPMENT OF A DECISION SUPPORT SYSTEM TO RECONFIGURE VEGETABLE SUPPLY CHAIN TO ENHANCE SUSTAINABILITY

1. BACKGROUND

Department of Manufacturing and Industrial Engineering, Faculty of Engineering, University of Peradeniya is conducting this research project funded by The National Science Foundation (Ministry of Higher Education, Technology & Innovation) NSF. This research project is titled as “Design and Development of a Decision Support System to Reconfigure Vegetable Supply Chain to Enhance Sustainability” aiming to develop a data driven decision support system by integrating all the supply chain actors to meet the supply and demand aligning to sustainability dimensions. Specifically, this system will be developed on an analytical framework which contains mathematical and simulation models. This decision support system is based on the existing main stream vegetable supply chain context where production AI regions were considered as the smallest production entity, and consumption divisional secretariat divisions were considered as the smallest consumption unit. When delivering the produced vegetable amounts to the consumption units through the main stream vegetable supply chain, different supply chain entities get involved, such as collection centers, wholesalers at economic centers and transport agents. The mathematical models were developed to generate new configurations, simulation models were developed to evaluate the solutions real time behavior of the suggested solution. A system framework has been developed combining these mathematical models and the simulation models, with input output data and the data base. The decision support system will be developed on top of this system framework. The University of Peradeniya together with National Science Foundation (NSF) is looking for a local qualified System Developer (SD)/Software Engineer (SE) to consult final phase of the project which is the development of the system according to the designed system framework and functional requirements.

2. OBJECTIVE OF THE ASSIGNMENT

1. Accommodate distinct decisions of F & V supply network entities at supply network level decisions.
2. Reconfigure F & V supply network managing supply and demand and planning logistics operations
3. Achieve performance measures in terms of efficiency, responsiveness, greenery and quality
4. Facilitate individual entities’ decision making supported by computational intelligence technique

3. SCOPE OF WORK

The selected applicant will be responsible for:

1. Development of the decision support system based on the provided system framework.
2. Purchase of the required facilities such as AWS EC2, AWS S3, Domain (.com), frontend template, Cloud Flare (DNS) and Google Direction API subjected to reimbursement.
3. Delivering all the functional requirements in the given timeline.
4. Setting up regular meetings to discuss about the progress.
5. Discussing and getting approval for any alterations of functional requirement before proceeding
6. Delivering the final product within the provided time line.

4. REPORTING OBLIGATION

The selected system developer/software engineer will report directly to the Primary Investigator (PI) and Co-PI in the department of Industrial Engineering, University of Peradeniya.

5. DURATION OF THE ASSIGNMENT

The services of SD/SE are required for a period of 4 months with possible extensions based on the satisfactory performance and requirements of the project. The expected start date of the assignment would be during the November of 2024.

6. PERFORMANCE INDICATORS

The SD/SE's services shall be subjected to half-monthly evaluation based on performance indicators specified below. Performance evaluation shall be the basis for extension or termination of the services. The following performance indicators shall be used for performance assessment:

- Positive progress and good performance of the system development, as per the TOR;
- Timely delivery of the functional requirements
- Well planned delivery approach
- Efficient team work and coordination with the team
- Efficient support in implementing feature extensions

7. PURCHASING ARRANGEMENTS

Purchases of the required facilities such as AWS EC2, AWS S3, Domain (.com), frontend template, Cloud Flare (DNS) and Google Direction API subjected to reimbursement.

8. CONFIDENTIALITY AND CONFLICT OF INTEREST

The consultant undertakes to comply with UOP's and NSF's policies and rules with regard to corrupt and fraudulent practices, conflict of interest and confidentiality. The consultant shall maintain confidentiality on all sensitive information obtained during the assignment and shall not publish wholly or in part the findings or such information, without prior written consent by the PI at UOP. Any drafts and other code bases produced by the consultant will be discussed and cleared with UOP before their final issue. A non-disclosure agreement (NDA) will be signed between the UOP and the selected candidate to be attached to the contract.

9. QUALIFICATIONS AND EXPERIENCE REQUIREMENTS

- Bachelor's degree in Software Engineering, IT or a related field, from a local or foreign university, recognized by the University Grants Commission (UGC) of Sri Lanka;
- A minimum of 2 years of relevant work experience in system development/software engineering;
- A past assignment of same nature in a government/International customer project is highly desirable;
- Knowledge and experience of web-based (cloud supported) system development is a strong advantage;
- High degree of knowledge of working with AWS EC2, AWS S3, Domain (.com), frontend template, Cloud Flare (DNS) and Google Direction API is a strong advantage;

10. METHOD OF PROCUREMENT

The procurement method is Individual Consultant selection method in line with the UOP Procurement procedures.