JOB DESCRIPTION
TASK-BASED RESEARCH ASSISTANT
IOT AND MACHINE LEARNING

Campus: **Middlesex University (Mauritius Branch Campus)**

Reporting to: **Project Supervisor**

The Research Assistant will join our team and focus on developing an IoT-based monitoring system. As a Research Assistant, you will be responsible for designing, implementing, and integrating various components of the system, leveraging the power of IoT, machine learning, and Raspberry Pi with sensors. This position offers a unique opportunity to contribute to cutting-edge research and make a significant impact in the field of monitoring technology.

Requirements • Bachelor's or Master's degree in Computer Science, Electrical Engineering, or a related field. • Strong programming skills, including experience with Raspberry Pi and IoT technologies. • Knowledge of machine learning algorithms and their application. • Familiarity with cloud-based infrastructure and data management

The project is based on tasks and renumeration per stage and duration as below. Some tasks are carried out concurrently.

Activity 1: IoT-Edge based Livestock Monitoring System Development

- **Task 1.1: System Architecture and Design Documentation**
    - Description: Develop and document an innovative system architecture and design for the IoT-Edge based Livestock Monitoring System.
    - Duration: Approximately 1 month
    - Task-based Cost: Estimated around Rs 8,000/-

- **Task 1.2: IoT Sensor Selection and Configuration Guide**
    - Description: Research and select IoT sensors, providing a comprehensive guide for their configuration within the dynamic Livestock Monitoring System.
    - Duration: Approximately 1 month
    - Task-based Cost: Estimated around Rs 8,000/-

- **Task 1.3: Setup and Programming Guide**
  - Description: Develop a detailed setup and programming guide, ensuring adaptability and flexibility for the diverse Livestock Monitoring System.
  - Duration: Approximately 1 month
  - Task-based Cost: Estimated around Rs 8,000/-

Activity 2: Cloud Storage Implementation and Data Management

- **Task 2.1: Cloud Storage Infrastructure Setup**
  - Description: Implement a robust cloud storage infrastructure, considering scalability and efficiency for diverse data types within the project scope.
  - Duration: Approximately 1 month
  - Task-based Cost: Estimated around Rs 10,000/-

- **Task 2.2: Data Management and Processing Plan**
  - Description: Develop a nuanced plan for data management and processing within the cloud, emphasizing adaptability to varying data structures.
  - Duration: Approximately 1 month
  - Task-based Cost: Estimated around Rs 10,000/-

Activity 3: Analytics and Machine Learning Integration

- **Task 3.1: Customized Machine Learning Algorithms**
  - Description: Innovate and implement machine learning algorithms tailored to the specific needs of livestock monitoring, emphasizing adaptability to evolving data patterns.
  - Duration: Approximately 1.5 months
  - Task-based Cost: Estimated around Rs 10,000/-

- **Task 3.2: Data Analysis and Visualization Tools**
  - Description: Develop sophisticated tools for data analysis and visualization, ensuring ease of interpretation for various stakeholders involved.
  - Duration: Approximately 1.5 months
  - Task-based Cost: Estimated around Rs 10,000/-

Activity 4: Development of AR Applications and Tools

- **Task 4.1: AR-Based On-Site Monitoring Application**
  - Description: Create an immersive AR application for on-site monitoring, focusing on user engagement and real-time data interaction.
  - Duration: Approximately 1.5 months

- o Task-based Cost: Estimated around Rs 12,000/-

- **Task 4.2: Interactive AR Training and Support Materials**
  - o Description: Develop interactive AR materials for training and support, ensuring a seamless user experience with a focus on user-friendly interfaces.
  - o Duration: Approximately 1.5 months
  - o Task-based Cost: Estimated around Rs 12,000/-

Activity 5: Adaptive, Automated Feeding System Implementation

- **Task 5.1: Integration of IoT Sensor Data with Feeding System Controls**
  - o Description: Integrate IoT sensor data with feeding system controls, emphasizing adaptability to diverse livestock scenarios.
  - o Duration: Approximately 1 month
  - o Task-based Cost: Estimated around Rs 10,000/-

- **Task 5.2: Customized Feeding Algorithms**
  - o Description: Develop customized feeding algorithms based on comprehensive data analysis and adaptive to diverse animal needs and preferences.
  - o Duration: Approximately 1 month
  - o Task-based Cost: Estimated around Rs 10,000/-

Activity 6: Project Implementation, Testing, and Validation

- **Task 6.1: Pilot Test of the Complete System in Selected Farms**
  - o Description: Conduct a pilot test in selected farms, emphasizing real-world scenarios to validate system performance and adaptability.
  - o Duration: Approximately 1 month
  - o Task-based Cost: Estimated around Rs 12,000/-

- **Task 6.2: Validation Report and Performance Analysis**
  - o Description: Generate a comprehensive validation report, including detailed performance analysis based on the results of the pilot test.
  - o Recommendations for System Improvements and Refinements
  - o Duration: Approximately 1 month
  - o Task-based Cost: Estimated around Rs 12,000/-

Remuneration

- For Activity 1: An all-inclusive allowance of Rs24,000/- upon satisfactory completion
- For Activity 2: An all-inclusive allowance of Rs20,000/- upon satisfactory completion
- For Activity 3: An all-inclusive allowance of Rs20,000/- upon satisfactory completion
- For Activity 4: An all-inclusive allowance of Rs24,000/- upon satisfactory completion
- For Activity 5: An all-inclusive allowance of Rs20,000/- upon satisfactory completion
- For Activity 6: An all-inclusive allowance of Rs24,000/- upon satisfactory completion

Contract Duration:

- For Activity 1: Appointment will be offered for a contractual period of 3 months.
- For Activity 2: Appointment will be offered for a contractual period of 2 months.
- For Activity 3: Appointment will be offered for a contractual period of 1.5 months.
- For Activity 4: Appointment will be offered for a contractual period of 1.5 months.
- For Activity 5: Appointment will be offered for a contractual period of 2 months.
- For Activity 6: Appointment will be offered for a contractual period of 2 months