**American International University – Bangladesh (AIUB)**

**Faculty of Engineering**

**Department of CSE, EEE, and CoE**

**EEE4103 MICROPROCESSOR AND EMBEDDED SYSTEM**

**COURSE PROJECT PROPOSAL FORM**

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| **SEMESTER: SPRING 2023-2024** |
| **PROJECT TITLE: Real-Time Water Monitoring System** |
| **SURVEY:** |
| **AIMS AND OBJECTIVES OF THE PROJECT:**  **Design and develop a real-time water monitoring system using Arduino:**  This objective focuses on the creation of the hardware and software components of the system using Arduino and other essential components like sensors.  **Implement sensors for measuring key water quality parameters:**  This objective emphasizes the selection and integration of specific sensors relevant to water quality assessment, such as turbidity sensors, pH sensors, and temperature sensors.  **Collect and analyze real-time water quality data:**  This objective highlights the system's ability to gather continuous data from the sensors and process it for meaningful insights into water quality. This potentially involves establishing data logging capabilities and visualization techniques. |
| **LITERATURE REVIEW:** (must be related to embedded system design with other necessary citations from the most recently published papers. At least 5 most recent publications must be collected, studied, identified the problems, and then discussed in this section) 5 MARKS |
| **EXPERIMENTAL BLOCK DIAGRAM:** |
| **POSSIBLE OUTCOMES OF THE PROJECT:**  **Improved Water Quality Monitoring and Management:**  **Early detection of water quality changes**: The real-time monitoring system can identify potential issues like pollution or contamination quickly, allowing for prompt intervention and corrective measures.  **Increased awareness and public engagement:** The project can raise public awareness about water quality issues and foster a sense of responsibility for water conservation and protection within the community.  **Contribution to Sustainable Development Goals (SDGs):**  **Goal 3:** Good Health and Well-being: Improved water quality can lead to better health outcomes within the community by reducing the risk of waterborne diseases.  **Goal 6**: Clean Water and Sanitation: The project directly contributes to this goal by providing tools for improved water quality monitoring and management, leading to cleaner water sources and better sanitation practices.  **Goal 12**: Responsible Consumption and Production: By promoting awareness and responsible water use practices, the project can contribute to sustainable consumption and production patterns.  **Goal 13**: Climate Action: By promoting responsible water management and preventing pollution, the project can indirectly contribute to climate change mitigation and adaptation efforts.  **Goal 14**: Life Below Water: Protecting water quality is crucial for maintaining healthy aquatic ecosystems and preserving biodiversity. This project can contribute to achieving this goal by ensuring cleaner water resources for aquatic life. |
| |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **PROJECT TIMELINE (GANTT CHART):** | | | | | | | | | | Task | DAY 1 | DAY 2 | DAY 3 | DAY 4 | DAY 5 | DAY 6 | DAY 7 | | Project planning | x |  |  |  |  |  |  | | Component sourcing |  | x | x |  |  |  |  | | Prototype build |  |  |  | x |  |  |  | | Testing and debugging |  |  |  |  | x |  |  | | Final integration |  |  |  |  | x | x |  | | Documentation |  |  |  |  |  |  | x | |
| **REFERENCES:** (only published paper-based references are allowed with the IEEE format, don’t use YouTube links, Wikipedia, or any random websites for references): 2 MARKS |

**COURSE TEACHER’S NAME COURSE TEACHER’S SIGNATURE DATE**

**GROUP MEMBERS**

|  |  |
| --- | --- |
| **NAME**: AZMINUR RAHMAN  **ID #: 22-46588-1**  **PROGRAM:** CSE  **EMAIL:** [**22-46588-1@student.aiub.edu**](mailto:22-46588-1@student.aiub.edu) | **NAME**: Tridib Sarkar  **ID #: 22-46444-1**  **PROGRAM:** CSE  **EMAIL:** [**22-46444-1@student.aiub.edu**](mailto:22-46444-1@student.aiub.edu) |
| **NAME**: S.M. FAYSAL MAHMUD  **ID #: 19-40315-1**  **PROGRAM:** EEE  **EMAIL:** [**19-40315-1@student.aiub.edu**](mailto:19-40315-1@student.aiub.edu) | **NAME**: MD. IMTIAZ HOSSAIN  **ID #: 19-41203-2**  **PROGRAM:** EEE  **EMAIL:** [**19-41203-2@student.aiub.edu**](mailto:19-41203-2@student.aiub.edu) |
| **NAME**: SOWRABH CHANDRA DAS  **ID #: 21-45397-3**  **PROGRAM:** CSE  **EMAIL:** [**21-45397-3@student.aiub.edu**](mailto:21-45397-3@student.aiub.edu) | **NAME**: KAWSHIK HALDER  **ID #: 21-45408-3**  **PROGRAM:** CSE  **EMAIL:** [**21-45408-3@student.aiub.edu**](mailto:21-45408-3@student.aiub.edu) |
| **NAME**: AVISHEK CHANDA PRATYAY  **ID #: 21-45489-3**  **PROGRAM:** CSE  **EMAIL:** [**21-45489-3@student.aiub.edu**](mailto:21-45489-3@student.aiub.edu) | |
| **REMARKS (for OFFICE use only)** | |

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| **Course Name:** | | Microprocessor and Embedded System | **Course Code:** | EEE 4103 |
| **Semester:** | | Spring, 2023-2024 | **Sec:** | F |
| **Faculty Member:** | | Md Sajid Hossain | | |
|  | |  |  |  |
| **Project Title:** | | Real-Time Water Monitoring System. | | |
| **Project Group No.** | | 06 | | |
|  | |  |  |  |
| **Sl #** | **Student ID #** | **Student Name** | **Obtained Marks** | |
| **1.** | **22-46588-1** | **AZMINUR RAHMAN** |  | |
| **2.** | **22-46444-1** | **TRIDIB SARKAR** |  | |
| **3.** | **19-40315-1** | **S.M. FAYSAL MAHMUD** |  | |
| **4.** | **19-41203-2** | **MD. IMTIAZ HOSSAIN** |  | |
| **5.** | **21-45397-3** | **SOWRABH CHANDRA DAS** |  | |
| **6.** | **21-45408-3** | **KAWSHIK HALDER** |  | |
| **7.** | **21-45489-3** | **AVISHEK CHANDA PRATYAY** |  | |

**Assessment Materials and Marks Allocation:**

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| --- | --- | --- | --- |
| **COs** | **Assessment Materials** | **POIs** | **Marks** |
| CO3 | Course Project Proposal Form | P.c.2.C6 | 30 |

**Assessment Rubrics:**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| KPIs | | Excellent  [2] | | | | | Proficient  [1.5] | | | | | Good  [1] | | | | Acceptable  [0.5] | | | | Unacceptable  [0] | | No Response  [0] | | | Secured Marks |
| **Project Title** | | The title reflects an issue related to complex engineering problems showing targets and methods with possible outcomes. | | | | | The title reflects an issue related to complex engineering problems showing targets and methods but some missing issues. | | | | | The title reflects an issue related to the course capstone project but there may be some missing issues. | | | | The title reflects an issue related to the course capstone project but is not complete or specific. | | | | The title does not reflect any issues related to the course capstone project. | | No Response at all/ copied from others /identical submissions with gross errors/ image file printed | | |  |
| **Comments** | |  | | | | | | | | | | | | | | | | | | | | **Total Marks (2)** | | |  |
| KPIs | | Excellent  [5] | | | | | Proficient  [4] | | | | | Good  [3] | | | | Acceptable  [2] | | | | Unacceptable  [1] | | | | No Response  [0] | Secured Marks |
| **Survey** | | The survey developed as a process for complex engineering problems considering cultural and societal factors has superior variables, targets, measures, and the implementation process is clear and challenging for future project implementation with several possible outcomes having good impacts. | | | | | The survey developed as a process for complex engineering problems considering cultural and societal factors has good variables, targets, measures, and the implementation process is clear and challenging for future project implementation with some possible outcomes with little impact. | | | | | The survey developed as a process for complex engineering problems considering cultural and societal factors has moderate variables, targets, measures, and the implementation process is clear and challenging for future project implementation with a few possible outcomes with impacts. | | | | The survey developed as a process for complex engineering problems considering cultural and societal factors has good variables, targets, measures, and the implementation process is somewhat clear for future project implementation with very few possible outcomes with little impact. | | | | The survey developed as a process for complex engineering problems considering cultural and societal factors has poor variables, targets, measures, and the implementation process is very unclear for future project implementation with a few possible outcomes but no impacts. | | | | No Response at all/ copied from others /identical submissions with gross errors/ image file printed |  |
| **Comments** | |  | | | | | | | | | | | | | | | | | | | | | | **Total Marks (5)** |  |
| KPIs | | Excellent  [3] | | | | | Proficient  [2.5] | | | | | Good  [2] | | | | Acceptable  [1] | | | | Unacceptable  [0.5] | | | | No Response  [0] | Secured Marks |
| **Aims and Objectives** | | Aims and objectives are written to solve complex engineering problems considering cultural and societal factors with specific targets, measurement, and implementation processes that are clear and challenging and have several possible outcomes having very good impacts. | | | | | Aims and objectives are written to solve complex engineering problems considering cultural and societal factors with general targets, measurement, and implementation processes that are not clear and challenging and have some possible outcomes having good impacts. | | | | | Aims and objectives are written to solve complex engineering problems considering a few cultural and societal factors with narrow targets; measurement, and implementation processes are clear and challenging and have a few possible outcomes having some impacts. | | | | Aims and objectives are written to solve complex engineering problems considering cultural or societal factors with a very target; measurement and implementation processes are not clear or challenging and have little possible outcome having no impact. | | | | Aims and objectives are written to solve complex engineering problems but do not consider cultural and societal factors with any targets; measurement, and implementation processes are not clear and challenging and no possible outcomes have no impacts. | | | | No Response at all/ copied from others /identical submissions with gross errors/ image file printed |  |
| **Comments** | |  | | | | | | | | | | | | | | | | | | | | | | **Total Marks (3)** |  |
| KPIs | Excellent  [5] | | Proficient  [4] | | | | | | Good  [3] | | | | | Acceptable  [2] | | | | Unacceptable  [1] | | | | | No Response  [0] | | Secured Marks |
| **Literature Review** | Specific formats are maintained to review and cite the literature with recent publications. Identified and analyzed the problem correctly. | | Specific formats are maintained to review and cite the literature with recent publications. Identified and analyzed the problem correctly, but all issues were not addressed with relevant or intended work. | | | | | | Specific formats are maintained to review and cite the literature with recent and past publications. Identified and analyzed the problem correctly, but all issues were not addressed with relevant or intended work. | | | | | Specific formats are maintained to review and cite the literature with recent and past publications. Identified but could not analyze all the problems correctly, and all issues were not addressed with relevant or intended work. | | | | No specific formats are maintained to review and cite the literature with recent publications. Could not identify and analyze all the problems correctly, and all issues are not addressed with relevant or intended work at all. | | | | | No Response at all/ copied from others/ identical submissions with gross errors/ image file printed | |  |
| **Comments** |  | | | | | | | | | | | | | | | | | | | | | | **Total Marks (5)** | |  |
| KPIs | Excellent  [4] | | | | | Proficient  [3] | | | | | Good  [2] | | | | | Acceptable  [1] | | | | Unacceptable  [0.5] | | | No Response  [0] | | Secured Marks |
| **Experimental Block Diagram** | The block diagram is drawn to show the connections of all the possible components or sub-systems to show their interdependence with all possible flows of signals from inputs to outputs. | | | | | The block diagram is drawn to show the connections of all of the possible components or sub-systems to show their interdependence with a few missing flows of signals from inputs to outputs. | | | | | The block diagram is drawn to show the connections of most of the possible components or sub-systems to show their interdependence with a few missing flows of signals from inputs to outputs. | | | | | The block diagram is drawn to show the connections of a few possible components or sub-systems to show their interdependence with some missing flow of signals from inputs to outputs. | | | | The block diagram is not drawn to show the connections of all possible components or sub-systems to show their interdependence and flow of signals from inputs to outputs. | | | No Response at all/ copied from others /identical submissions with gross errors/ image file printed | |  |
| **Comments** |  | | | | | | | | | | | | | | | | | | | | | | **Total Marks (4)** | |  |
| KPIs | Excellent  [4] | | | | Proficient  [3] | | | | | Good  [2] | | | | | Acceptable  [1] | | | | Unacceptable  [0.5] | | | | No Response  [0] | | Secured Marks |
| **Possible Outcomes** | Outcomes are written to achieve complex engineering problems’ solutions considering cultural and societal factors and showing measurement, and implementation processes to attain the outcomes with all possible impacts. | | | | Outcomes are written to achieve complex engineering problems’ solutions considering cultural and societal factors and showing measurement, and implementation processes to attain the outcomes with some impacts. | | | | | Outcomes are written to achieve complex engineering problems’ solutions considering cultural and societal factors and do not show measurement, and implementation processes to attain the outcomes without showing any impacts. | | | | | Outcomes are written to achieve complex engineering problems’ solutions but do not consider cultural and societal factors and do not show measurement, and implementation processes to attain the outcomes without showing any impacts. | | | | Outcomes are not written to achieve complex engineering problems’ solutions do not consider cultural and societal factors and do not show measurement, and implementation processes to attain the outcomes without showing any impacts. | | | | No Response at all/ copied from others /identical submissions with gross errors/ image file printed | |  |
| **Comments** |  | | | | | | | | | | | | | | | | | | | | | | **Total Marks (4)** | |  |
| KPIs | Excellent  [5] | | | Proficient  [4] | | | | Good  [3] | | | | | Acceptable  [2] | | | | Unacceptable  [1] | | | | No Response  [0] | | | | Secured Marks |
| **Gantt Chart** | Specific formats are maintained to draw the Gantt chart and there is the order of workflow with all work to be done. | | | Specific formats are maintained to draw the Gantt chart and there is the order of workflow with a few works missing. | | | | Specific formats are maintained to draw the Gantt chart and there is the order of workflow with some works missing. | | | | | No specific formats are maintained to draw the Gantt chart and there is little order of workflow with some works missing. | | | | No specific formats are maintained to draw the Gantt chart and there is no order of workflow with the most important works missing. | | | | No Response at all/ copied from others/ identical submissions with gross errors/ image file printed | | | |  |
| **Comments** |  | | | | | | | | | | | | | | | | | | | | **Total Marks (5)** | | | |  |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| KPIs | Excellent  [2] | Proficient  [1.5] | Good  [1] | Acceptable  [0.5] | Unacceptable  [0] | No Response  [0] | Secured Marks |
| **References** | Specific formats are maintained to write the references, and all are recently published journal and conference papers having no missing information. | Specific formats are maintained to write the references, and all are journal and conference papers, but some old papers have missing information. | No specific formats are maintained to write the references, and many are internet sources with several missing information and very old references. | No specific formats are maintained to write the references and most of them are internet sources with missing information. | No specific formats are maintained to write the references, and all are internet sources with missing information. | No Response at all/ copied from others /identical submissions with gross errors/ image file printed |  |
| **Comments** |  | | | | | **Total Marks (2)** |  |