**Group ID: 3**

**Title of the Project:**

**Name of the Guide: Dr. A.A. Junnarkar**

**Student Names**

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| --- | --- |
| 1 | Shivani Kulkarni |
| 2 | Apurva Ingale |
| 3 | Bhagyashree Kande |
| 4 | Aditi Wankhade |

Meeting Details

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| Sr No | Discussions | Remarks by guide | Sign of Guide |
| 1 | **Domain Selection :**  Selected two domains:   * IOT * Image Processing |  |  |
| 2 | **Idea Gathering and Selection of Problem Statement:**     * Done research on various IOT and image processing related problem statements. * Studied limitations and benefits of existing problem statements. * Sorted three different problem statements. * Selected problem statement:   **“AN APPROACH FOR UNDERWATER IMAGE PROCESSING USING RASPBERRY PI”** |  |  |
| 3 | **Literature Survey:**  Done literature survey by studying different IEEE and other related papers.  Used following papers for literature survey:   * Color Correction Based on CFA and Enhancement Based on Retinex with Dense Pixels for Underwater images.   Author : Shiqiang Tang1  Published Year : 2020  Platform : IEEE Access   * An approach for underwater image enhancement based on color correction and dehazing.   Author : Yue Zhang  Published Year : 2020  Platform : International Journal of Advanced Robotic Systems   * Underwater Image Enhancement Using Deep Learning.   Author : Vigneshwaran Pandi Published Year : 2022  Platform : ResearchGate   * Underwater image enhancement with latent consistency learning-based color transfer.   Author : Q. M. Jonathan Wu Published Year : 2022  Platform : IET Image Processing |  |  |
| 4 | **Project Review 1:**  Presented overall idea of our project to guide and got approval from guide. |  |  |

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| 5 | **Requirement Analysis:**   * Identified software and hardware requirements. * Done research for hardware specifications. * Discussed about project requirement with seniors. * Calculated hardware cost and overall project cost. |  |  |
| 6 | **Domain scope:**   * Identified scope of our project. * Identified limitations of our project. * Decided exact scope of project and started working that direction |  |  |
| 7 | **Requirement Gathering:**   * Given application to college for hardware requirements from college. * Got raspberry pi and camera from college for implementation of project. * Installed different softwares for coding such as Matlab,VSCode. |  |  |
| 8 | **System Design and Architecture:**   * Identified flow of our project. * Designed different flow diagrams such as DFDs, UMLs, etc * Designed system architecture of project. |  |  |
| 9 | **Proposal Writing and Proposal Submission:**  Prepared proposal which consists of abstract, problem definition, objective, scope, requirements of project and submitted it to guide. |  |  |
| 10 | **Project Review 2:**  Presented overall working of our project to the external with all design diagrams and explained detailed system architecture of our project. |  |  |
| 11 | **Report Writing and Report Submission:**  Prepared project report using Latex which consists of Literature survey, Requirement Analysis, System Design and submitted it to guide. |  |  |
| 12 | **Project Presentation:**  Presented project done till system design. |  |  |

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| 13 | **Start implementation:**  Run previous existing system codes, study those codes and find drawbacks  in the existing systems. |  |  |
| 14 | **Algorithm Analysis :**  Study and analyzed all the algorithms that are used underwater and choose suitable best algorithms. |  |  |
| 15 | **Hardware requirement collection :**  Find the hardware required for the project and collect that as per requirements (HDMI cable, SD Card, Raspberry pi, Camera, etc). |  |  |
| 16 | **Practical Analysis of Equipments(Before implementation) :**  Getting hands on hardware before starting implementation on hardware. |  |  |
| 17 | **Installation and Setup :**  Installed and setup all the softwares that are required for the project(VNC viewer, putty, vbox, rpi os file). |  |  |

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| 18 | **Coding and Algorithm Implementation:**   * Coding for capturing underwater images , resolving coding errors. * Implementing Algorithms: * Superior underwater color cast neutralization * Fusion of dual-intensity pictures based on the mean and median values * Swarm-intelligence based mean equalization * Unsharp masking |  |  |
| 19 | **Camera Issue :**  Solving camera issue. |  |  |
| 20 | **UI Implementation:**  Implemented UI in Django. |  |  |
| 21 | **Testing :**  Tested model in various environments with various depth. |  |  |
| 22 | **Final Report Writing:**  Prepared project report using LATEX. |  |  |
| 23 | **Final Report Changes and Submission:**  Done final report changes and submitted. |  |  |