**Assignment #6 - Milestones, Timeline, and Effort Matrix**

**Milestones List:**

*Hardware Design Plan Completion*

Description: Specify the components needed for the rig based on the design diagram and create a detailed hardware design plan.

*Hardware Procurement Completed*

Description: Research and identify suppliers for the required hardware components, and place orders for the hardware.

*Camera Calibration Done*

Description: Successfully calibrate the multiple cameras to ensure accurate image capture.

*Rig Prototype Built and Tested*

Description: Assemble the hardware components to create a functional rig prototype and test it for basic functionality.

*Data Collection Protocol Developed*

Description: Develop a protocol for capturing images from different viewpoints and define parameters for image capture.

*Meta's SAM Model Implemented*

Description: Research and implement Meta's SAM model for object segmentation and ensure accurate segmentation.

*NeRF Algorithm Implemented and Fine-Tuned*

Description: Implement the NeRF algorithm for 3D object reconstruction and fine-tune it for compatibility with the hardware setup.

*Background Replacement Algorithm Implemented*

Description: Investigate and implement an algorithm for replacing backgrounds while ensuring realistic lighting and shadows.

*Data Preprocessing Pipeline Developed*

Description: Develop a pipeline for preprocessing captured images, including distortion correction and alignment.

*User Interface (Optional) Completed*

Description: Design and develop a user-friendly interface for interacting with the system.

*Model Quality Evaluation Completed*

Description: Define metrics and criteria to evaluate the quality of 3D models and conduct testing and evaluation.

*Documentation Maintained*

Description: Maintain comprehensive documentation throughout the project, including hardware schematics, software code, and user guides.

*Project Report Created*

Description: Create a final project report that includes design details, implementation insights, and evaluation results.

*Testing and Iteration Ongoing*

Description: Continuously test the system and iterate on both hardware and software components to improve accuracy and efficiency.

*Ethical Considerations Addressed*

Description: Consider ethical implications related to data usage and object modeling and ensure compliance with ethical standards.

*Budget and Resource Management*

Description: Manage the project budget and allocate resources effectively.

*Regular Team Meetings Held*

Description: Hold regular team meetings to discuss progress, challenges, and adjustments to the project plan.

*External Expert Consultation (If Required)*

Description: Seek guidance and advice from experts in relevant fields, as needed.

*Timeline and Milestones Management*

Description: Manage project timelines and ensure that milestones are achieved according to the project plan.

*Project Repository Maintained*

Description: Maintain the project repository, including code version control and documentation updates.

**Table 1. Timeline:**

| **Task** | **Start Date** | **Completion Date** |
| --- | --- | --- |
| Hardware Design Plan Completion | Oct 1, 2023 | Oct 15, 2023 |
| Hardware Procurement Completed | Oct 1, 2023 | Oct 31, 2023 |
| Camera Calibration Done | Oct 16, 2023 | Nov 15, 2023 |
| Rig Prototype Built and Tested | Nov 1, 2023 | Nov 30, 2023 |
| Data Collection Protocol Developed | Dec 1, 2023 | Dec 15, 2023 |
| Meta's SAM Model Implemented | Dec 16, 2023 | Jan 15, 2024 |
| NeRF Algorithm Implemented and Fine-Tuned | Dec 16, 2023 | Jan 31, 2024 |
| Background Replacement Algorithm Implemented | Jan 1, 2024 | Jan 31, 2024 |
| Data Preprocessing Pipeline Developed | Feb 1, 2024 | Feb 15, 2024 |
| User Interface (Optional) Completed | Feb 16, 2024 | Feb 28, 2024 |
| Model Quality Evaluation Completed | Mar 1, 2024 | Mar 15, 2024 |
| Documentation Maintained | Oct 1, 2023 | Apr 15, 2024 |
| Project Report Created | Mar 16, 2024 | Mar 31, 2024 |
| Testing and Iteration Ongoing | Oct 1, 2023 | Apr 30, 2024 |
| Ethical Considerations Addressed | Oct 1, 2023 | Apr 30, 2024 |
| Budget and Resource Management | Oct 1, 2023 | Apr 30, 2024 |
| Regular Team Meetings Held | Oct 1, 2023 | Apr 30, 2024 |
| External Expert Consultation (If Required) | Oct 1, 2023 | Apr 30, 2024 |
| Timeline and Milestones Management | Oct 1, 2023 | Apr 30, 2024 |
| Project Repository Maintained | Oct 1, 2023 | Apr 30, 2024 |

**Table 2. Effort Matrix:**

| **Task** | **Ameya's Effort** | **Om's Effort** |
| --- | --- | --- |
| Design Rig Hardware Components | 30% | 0% |
| Procure Hardware Components | 30% | 0% |
| Calibrate Cameras | 0% | 100% |
| Build Rig Prototype | 30% | 0% |
| Data Collection Protocol | 30% | 0% |
| Implement Meta's SAM Model | 0% | 70% |
| NeRF Algorithm Implementation | 0% | 70% |
| Background Replacement Algorithm | 40% | 0% |
| Data Preprocessing | 40% | 0% |
| User Interface Development (Optional) | 50% | 0% |
| Evaluate Model Quality | 0% | 40% |
| Documentation | 60% | 0% |
| Project Reporting | 0% | 40% |
| Testing and Iteration | 50% | 50% |
| Ethical Considerations | 50% | 50% |
| Budget and Resource Management | 50% | 50% |
| Regular Team Meetings | 50% | 50% |
| External Expert Consultation (If Required) | 50% | 50% |
| Timeline and Milestones Management | 50% | 50% |
| Project Repository Maintenance | 50% | 50% |