Motion Tracking ML for the Rehabulation:

Workflow of the project

1.Data Collection and Preparation

- Import the **MPU6050 dataset** into a processing environment (e.g., Python).
- **Clean and preprocess** the data

2. Movement Classification

- Label wrist movements in dataset.
- Use **LSTM** to train a model that can classify different wrist movements based on sensor data.

3. Model Testing

- Evaluate the model's performance using validation techniques (e.g., cross-validation).
- Fine-tune the model if necessary to improve accuracy.

4. Unity Integration

- Import the trained model into Unity (using C# or a plugin).
- Set up a **real-time data stream** from the MPU6050 sensor to Unity (e.g., via Bluetooth).
- Use Unity scripts to process the sensor data and **classify wrist movements** in real-time.

5. Game Logic

- Assign game actions to different wrist movements:
- Implement interactive features where wrist movements control characters or objects in the game.

6. Testing and Calibration

- Test the system for accuracy and responsiveness.
- Adjust sensitivity and thresholds to ensure smooth gameplay and correct wrist movement recognition.

7. Refinement and Deployment

- Polish the game mechanics based on testing feedback.
- Finalize the integration and deploy the game.