*Eighth Meeting Note*

1. *Attendance list (who attended, and who did not, and for what reason?)*

*Oluwatimilehin Tijani, Qianyu Hu, Kexin Zhang, Weitao Deng, Yutong Cui,*

*Dongjian Ma, Mengting Wang, Botong Wen,*

1. *Date, time and place for the meeting*

*Thursday 16:00-17:00, February 20, 2025, Online Meeting*

1. *Report on the preparations (what issues, questions and challenges were brought up?)*

*(1). Control:* *Reported on the optimization of motion accuracy through PID compensation algorithm and the validation of coordinate transformation and pose calculation correctness using TF transformation*

*(2). Transformation: Discuss the coordinate transformation broadcasting method and present the experimental results, proposing further research on TF2 listening.*

*(3). Detection:* *Reported on the point cloud algorithm for pose estimation and preliminary experimental results.*

*(4). Motion Planning: Presented the implementation of object picking and motion planning using MoveIt!, including object selection based on scores, path planning execution, and comparisons between different planning algorithms, analyzing their success and failure cases.*

1. *Advice that you received*
2. *Integrate the work of various modules, unify the research approach, and avoid conflicts and redundancies between different methods.*
3. *Focus on presenting the results while minimizing the demonstration of the implementation process.*
4. *The object detection module explores and switches to other methods to improve detection speed, primarily using the YOLO algorithm and converting the results to obtain 3D coordinates.*
5. *Optimize the algorithm in the motion planning module to resolve existing errors.*
6. *Decisions that were made*
7. *Use Moveit uniformly for research, replacing the approach of using both Matlab and Moveit simultaneously.*

*(2) Focus on using the YOLO algorithm for object detection and convert RGB images into depth images to obtain 3D coordinates.*

*(3) Adjust the Moveit algorithm and parameters to resolve path planning failures and optimize the scoring algorithm.*

1. *Actions that were agreed on*

*Adjust the existing research plan based on recommendations, unify the design and implementation methods using Moveit, conduct more precise discussions on tasks, and further refine and optimize the approach accordingly.*