MidTerm Report

For this checkpoint, we are able to move the robot in the simulation environment and perform object detection. We are using the camera feed from robot for perceiving objects. We were allocated the interbotix_locobot_WX250 with 6 DOF. However, due to logistics issues, we have not received the robot. We have faced a lot of difficulties in setting up the interbotix locobot packages required for simulation as the documentation that is available expects that the robot is physically available. Additionally the locobot didn't have the support for Python Gazebo environment, so we have faced significant challenges in the setting up the Gazebo simulation with Locobot. Currently in the simulation, the camera feed is little delayed which we need to address.

Further, we should still work on the arm to point at the objects. Also, we plan to work on robot doing some pre-fixed movements based on the music played(based on tempo, beat etc). This will be tricky as we are not sure how we need to figure out a way for the robot to match the beat, tempo of the song. Finally as mentioned in the proposal, in the extension task we need to look into prompt tuning a LLM to give simple instructions for performing the given command (aka planning). The challenge as we mentioned is that the LLM based planning is an active area of research and already has to address the robot to dance to music.

Here is the link to the video:

https://drive.google.com/drive/folders/16MNAvsaV_ppoGbvzqG2VceIHd5PhQR30?usp=sharing