

CHAPTER 5 – CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

After testing the Mechanical Improvement AMR, there some conclusions to be made:

- The mechanical design from previous work has been totally changes, such as; the frame, body, driver mechanism, and new adds on parts; cart carrier and locking system.
- This thesis work resulting the mechanical improvement of the robot is successfully presentable.
- All AMR body pieces and cart carrier will be able to operate effectively for industrial purposes due to their shape and durability.
- The inner upper body gets misaligned with the inner lower body due to inadequacies in the handwork utilized in producing the locking mechanism, resulting in an untidy exterior surface.
- The average current consumed by the BLDC motor while functioning throughout the test is between 1 and 5 amperes, which is still a long way from the maximum current available to the BLDC motor.
- The direction of movement of the motor cannot be set autonomously since the robot testing is still in the form of utilizing the default BLDC motor application, which can only accept velocity as input.
- Because there is now a connectivity problem at the communication port on the BLDC driver, the value of the voltage received by the BLDC motor cannot be accessed. As a result, no actual data can be gathered.

5.2 Recommendation

- By changing the material with a lower weight material, the cover for the robot and the locking system may be enhanced.
- To produce a robot cover and a locking system cover as accurate as the 3D drawing design plan, it is preferable to build all cover parts using a mold.
- The locking system should be redesigned with a superior mechanism that can employ a single DC motor with gearing to create four shafts to concurrently pull the inner upper body. This new system should be simpler to produce.
- This AMR should have worked automatically with an automated software that employed sensors that could update and read all conditions in milliseconds to get more valid data.
- With a software that can work to automate this robot, the data acquired will be more precise, and this will be able to assist in the discovery of new data in the form of the maximum weight that the robot can carry, and these findings will aid in gaining commercial acceptance.
- The locking system must include a sensor that can determine when the robot's position must be stopped in order for the mechanism locking system to function properly and without misalignment. For the idea it could use infrared sensor that mount on the locking system, and mark the position on the cart carrier.

