

# Bibliography

- [1] Robert Holmberg, Oussama Khatib, "Development and Control of a Holonomic Mobile Robot for Mobile Manipulation Tasks" *International Journal of Robotics Research V19* p. 1066 - 1074.
- [2] Robert Holmberg, Oussama Khatib, "Development of a Holonomic Mobile Robot for Mobile Manipulation Tasks" *International Conference on Field and Service Robotics* Pittsburgh, PA, Aug. 1999
- [3] Bryan J. Thibodeau, Patrick Deegan, Roderic Grupen, "Static Analysis of Contact Forces With a Mobile Manipulator" *ICRA 2006*.
- [4] A. Matsikis, F. Schulte, F. Broicher and K.-F. Kraiss, "A Behaviour Coordination Manager for a Mobile Manipulator" *Proceedings of the 2003 IEEE/RSJ Intl. Conference on Intelligent Robots and Systems*, Las Vegas, Nevada October 2003
- [5] Pfeiffer, F., Johanni, R., "A concept for manipulator trajectory planning" *IEEE Journal on Robotics and Automation*, Volume 3, Issue 2, pp 115 - 123, Apr 1987.
- [6] S. Thrun, W. Burgard, and D. Fox, "A Probabilistic Approach to Concurrent Mapping and Localization for Mobile Robots", *Journal of Autonomous Robots*, pp. 253 - 271, vol. 5, no. 3-4, July 1998.

- [7] Qing-Guo Wang; Tong-Heng Lee, "PID tuning for improved performance", *IEEE Transactions on Control Systems Technology*, Volume 7, Issue 4, pp. 457-465, July 1999
- [8] Kim, K.S.; Kim, Y.C.; Keel, L.H.; Bhattacharyya, S.P., "PID controller design with time response specifications", *Proceedings of the American Control Conference*, Volume 6, 4-6 pp. 5005-5010, June 2003
- [9] W, Bolton, (2002), *Mechatronics*, 2nd Edition, Pearson Education LTD, India, pages 279-304.
- [10] John, B. Peatman (2004), *Design with PIC Microcontrollers*, 1st Edition Pearson Education LTD India.
- [11] Jan Axelson (1998), *Serial Port Complete*, 1st Edition, Penram International Publishing PVT Ltd, India.
- [12] Sharon J.P., Pamela P. (2000), *Hands On Visual Basic 6*, 1st Edition, BPB Publications, India.
- [13] Roland Siegwart, Illah R Nourbakhsh, *Introduction to Autonomous Mobile Robots* Prentice hall of India PVT Ltd, India.
- [14] Muhammad H Rashid, *Power Electronics Circuits, Devices and Applications*, Third Edition, Prentice hall of India PVT Ltd, India.
- [15] Dan Neacsuledcu, *Mechatronics*, Pearson Education LTD India.
- [16] Craig, J.J., *Introduction to Robotics: Mechanics and control*. 2nd edition. Boston, Addison Wesley, 1989.
- [17] [http:// ww1.microchip.com](http://ww1.microchip.com)
- [18] [http:// ww1.micrchip.com/downloads/en/AppNotes/00937a.pdf](http://ww1.micrchip.com/downloads/en/AppNotes/00937a.pdf)
- [19] [http:// ww1.microchip.com/downloads/en/AppNotes/00964a.pdf](http://ww1.microchip.com/downloads/en/AppNotes/00964a.pdf)
- [20] [http:// ww1.microchip.com/downloads/en/AppNotes/00734a.pdf](http://ww1.microchip.com/downloads/en/AppNotes/00734a.pdf)

# Appendix A

## Master controller circuit

This appendix lists electronics circuit diagrams , PCB designs , software and hardware used for the master controller.

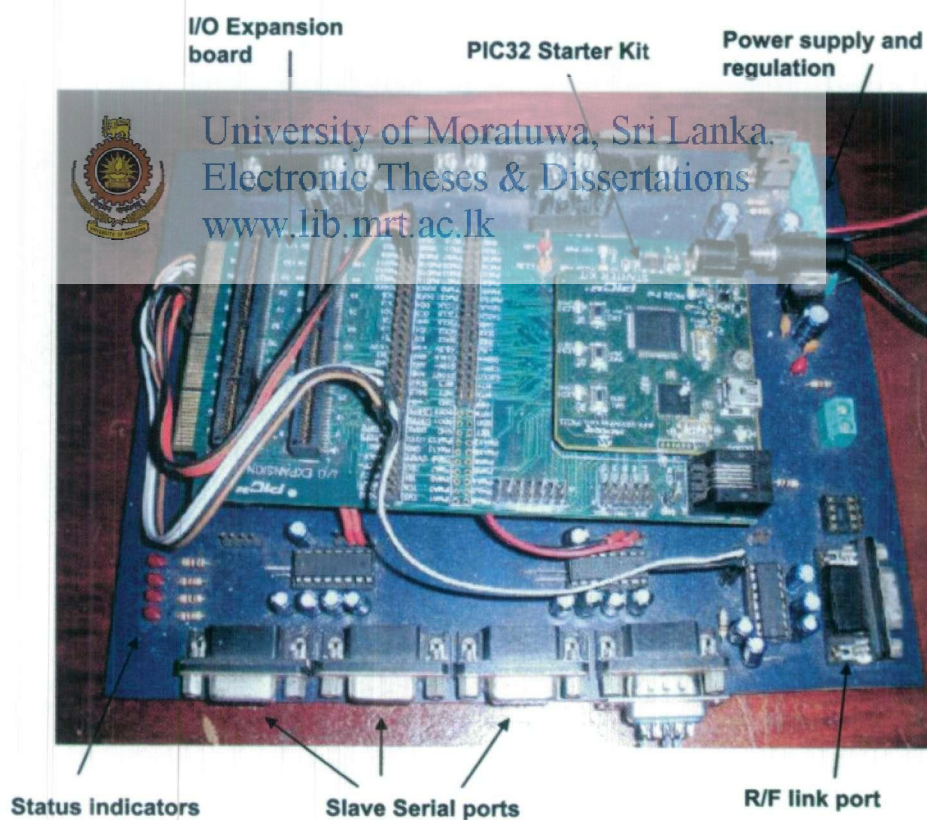
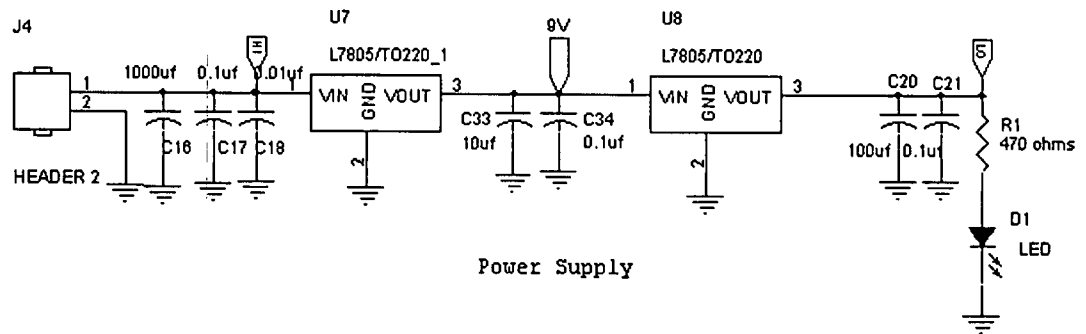
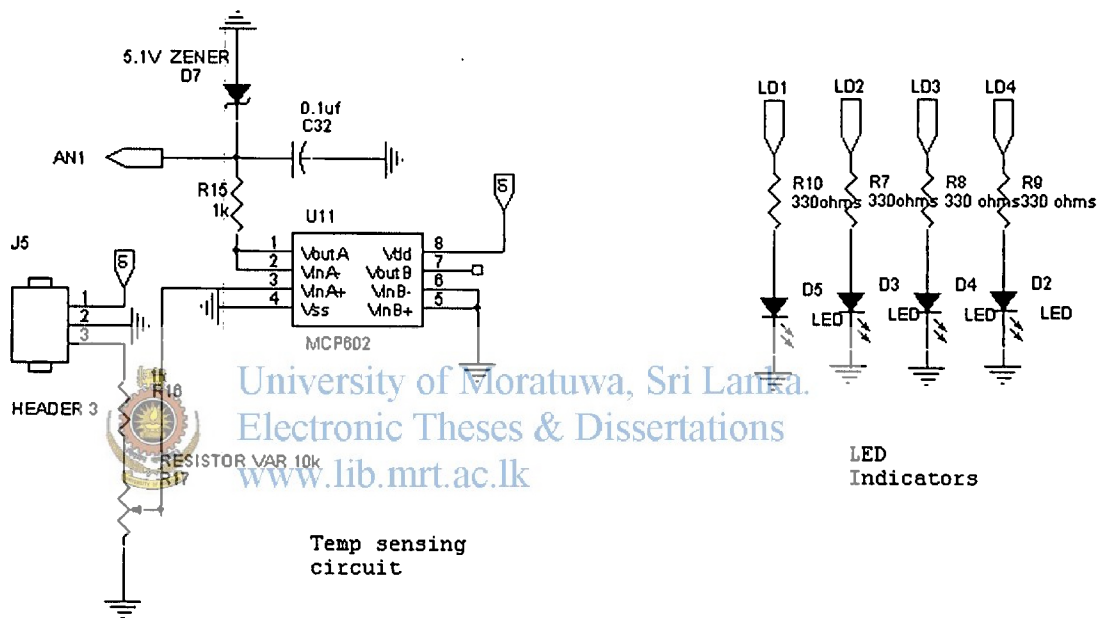


Figure A.1: Master controller

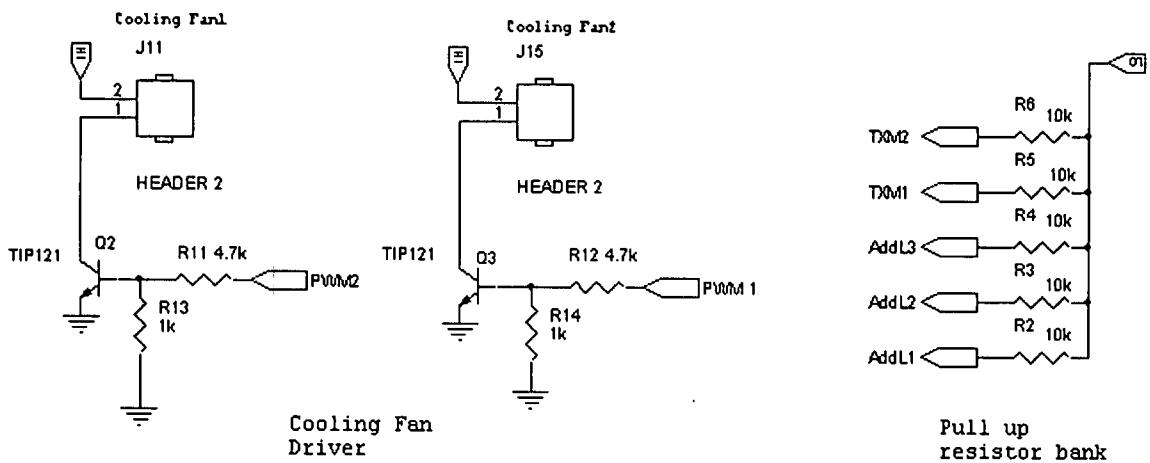


Power Supply



Temp sensing circuit

LED Indicators



Cooling Fan Driver

Pull up resistor bank

Figure A.2: Master controller circuit diagram part 1

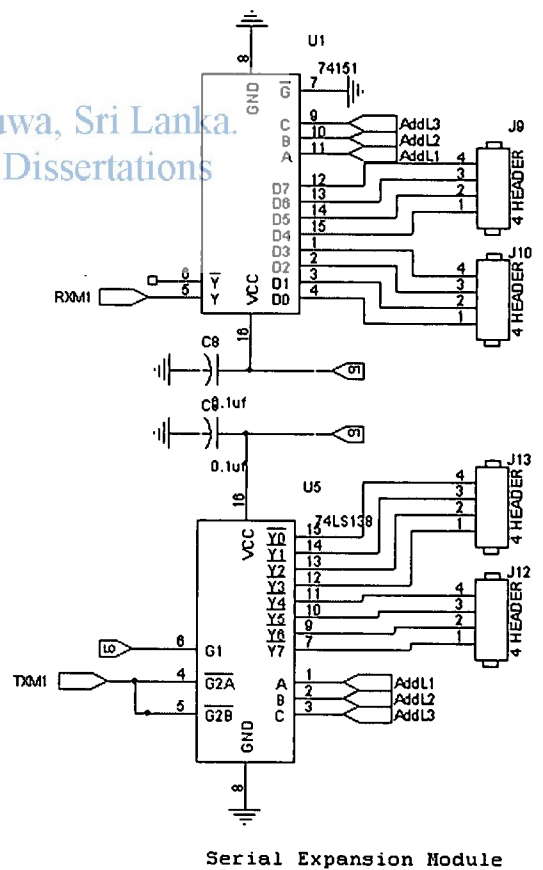
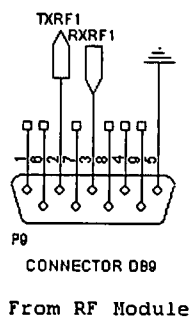
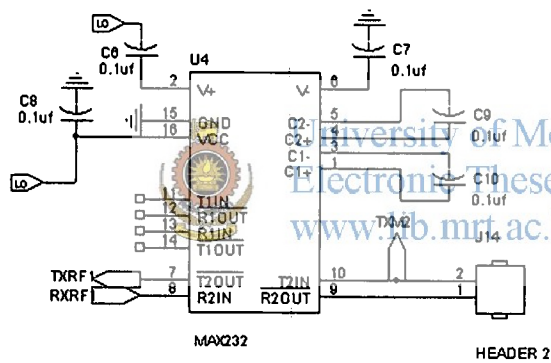
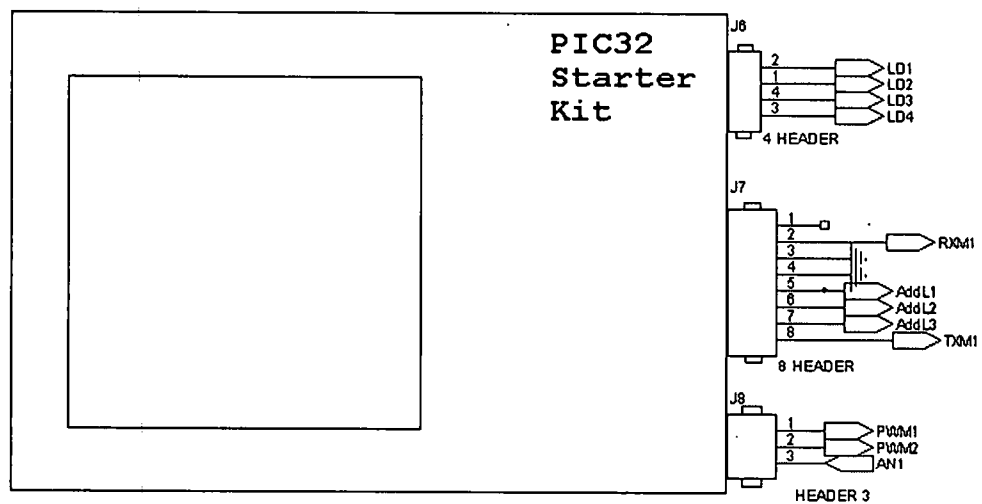


Figure A.3: Master controller circuit diagram part 2





## Appendix B

### Servo controller circuit

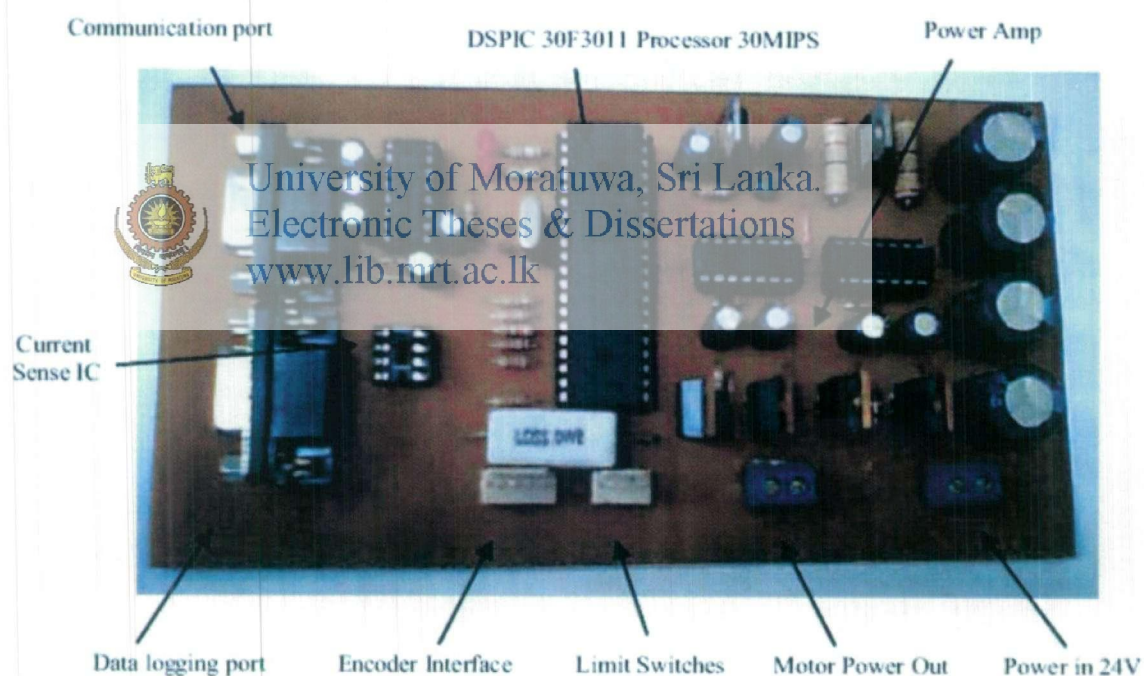


Figure B.1: Servo controller prototype

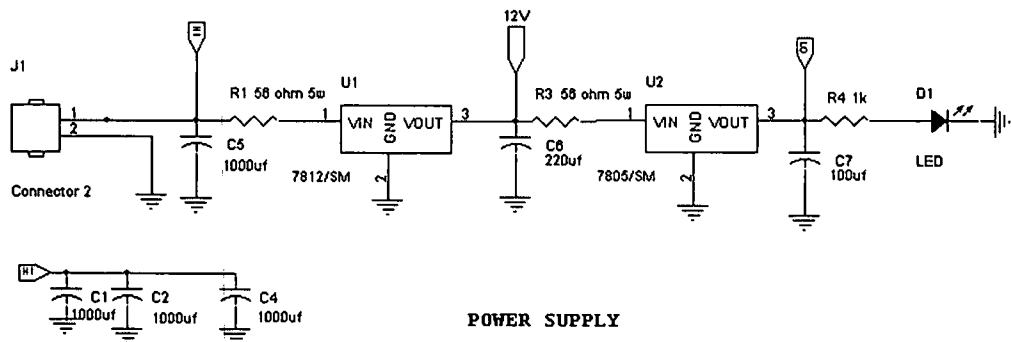
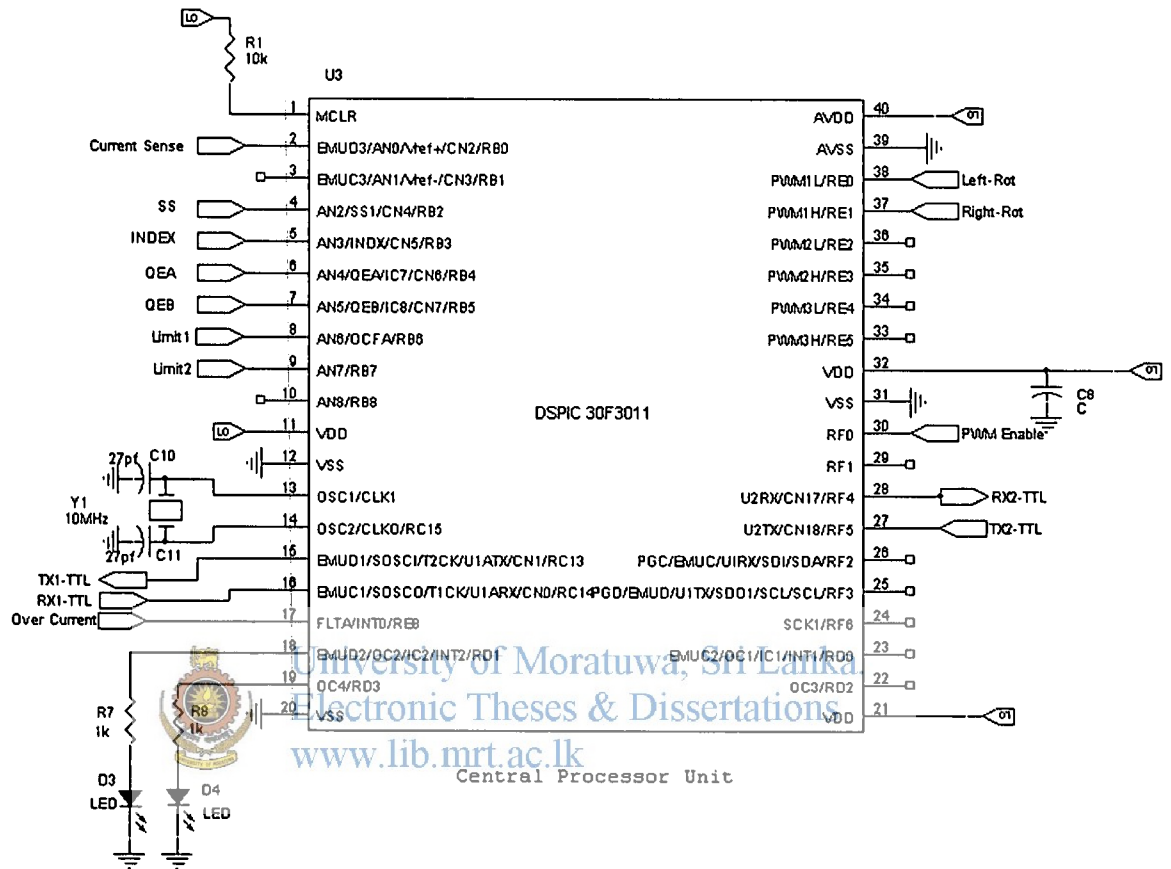


Figure B.2: Servo controller circuit diagram part 1



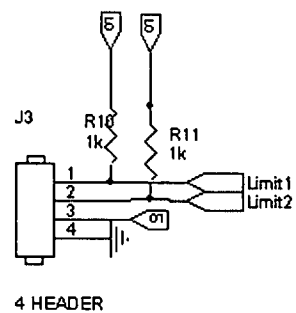
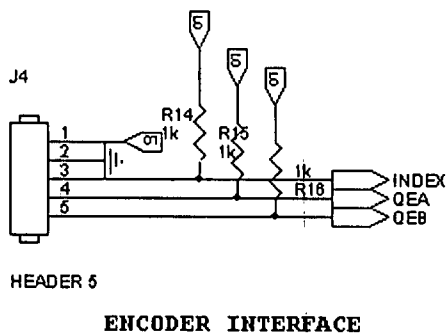
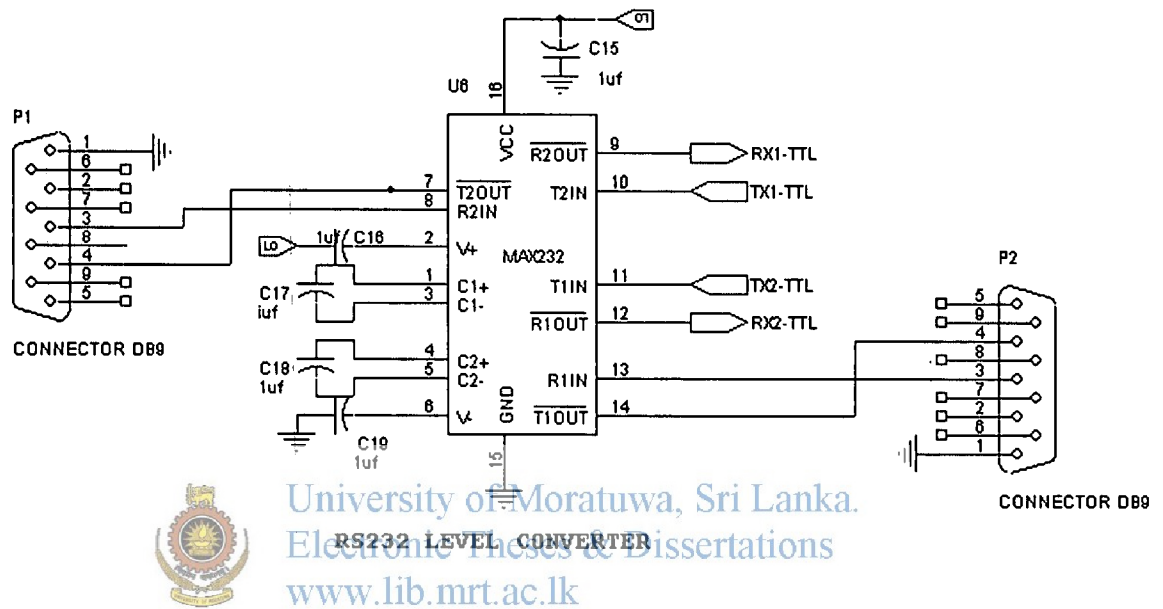
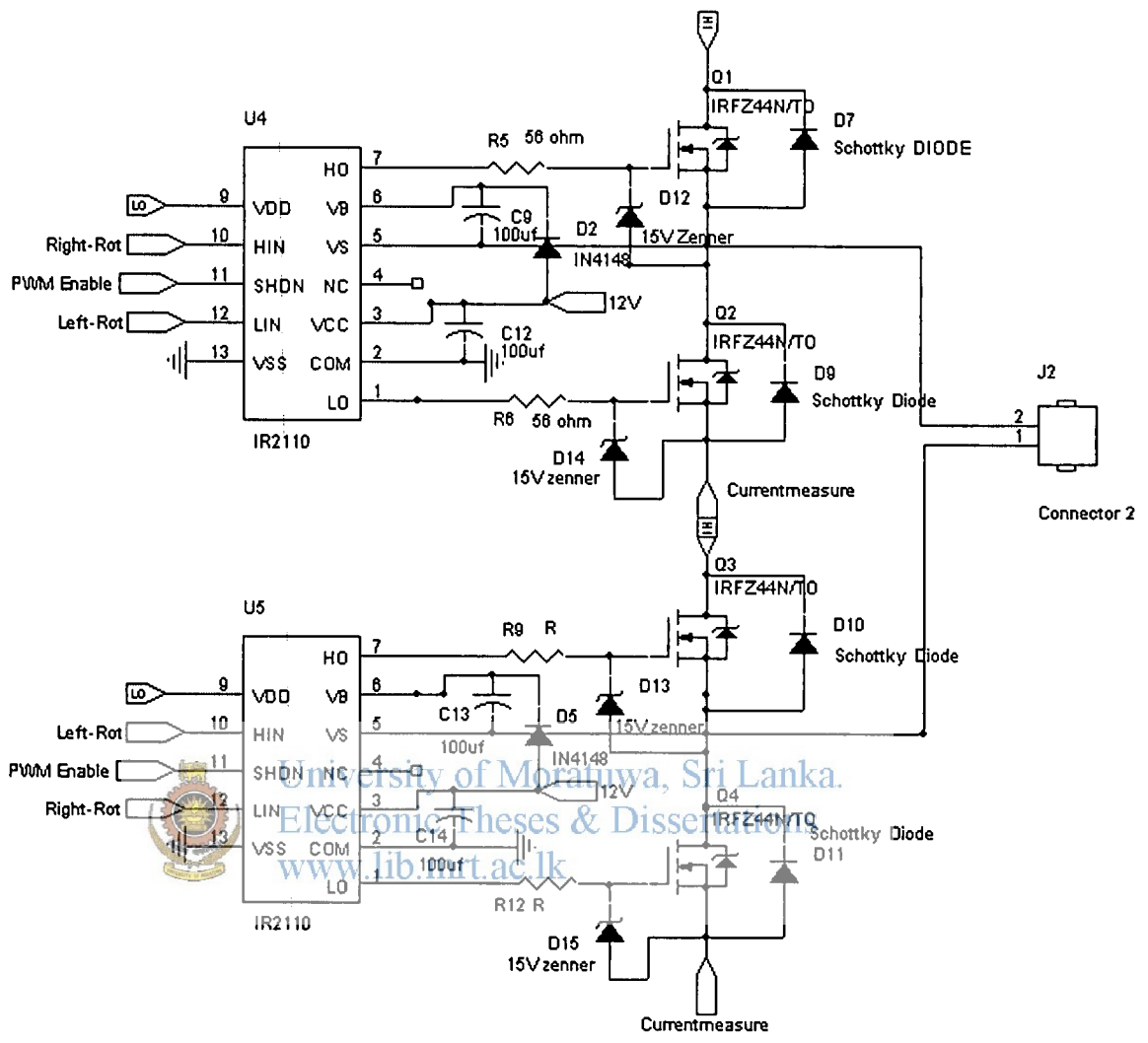
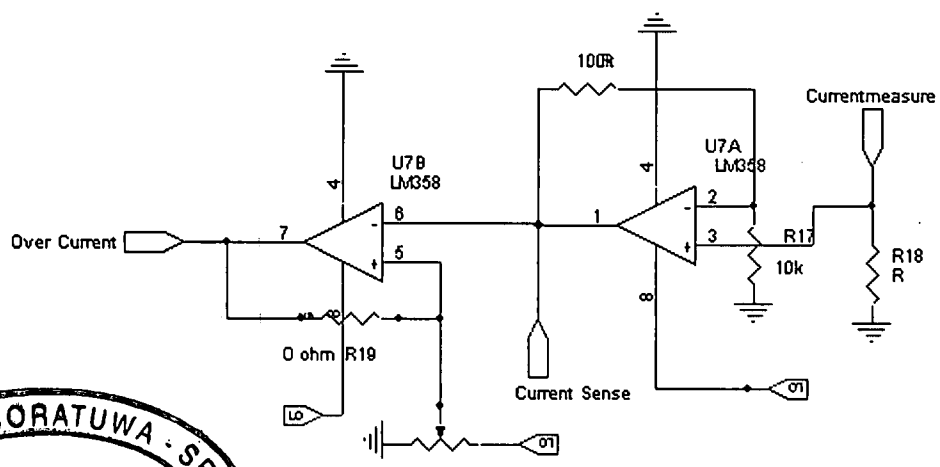


Figure B.3: Servo controller circuit diagram part 2



H-Bridge circuit



Current sense circuit

