UNIVERSITY OF MORATUWA

Faculty of Engineering

Registered Module No: EN3992

INDUSTRIAL TRAINING REPORT

LE Robotics (Pvt.) Ltd.

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Preface

This report was composed as a partial fulfillment of the requirements of the Module EN3992 - Industrial Training, in the curriculum of B.Sc. in Engineering (Electronic and Telecommunication) at the University of Moratuwa, Sri Lanka. The experience and knowledge that I gained during the six months of my industrial training were used and were the inspiration to create this report.

Acknowledgment

I would like to gratefully acknowledge all of the people who helped me to make this six months of special industrial training period a massive success, starting from the point of applying to a company to the point I left the training organization at the completion of six months.

First of all I would like to express my heartfelt gratitude to Professor Kapila Jayasinghe who was the supervisor for us throughout the six months of internship period. The advice he provided us with regard to professional engineering practice and ethics were invaluable. In addition to that the directions he provided us to gain the required technical skills required to the allocated project were priceless.

Next I would like to express my gratitude towards Miss. Laknie Jayasinghe who was the Engineer in-charge of us in our training period. The support she provided us to improve our soft skills as well as technical skills as a professional engineer, is highly appreciated.

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List of Abbreviations

OOP Object Oriented Programming

RPi Raspberry Pi

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Chapter 1

Description of the organization and business, its past, present and future

Use of acronyms:

I have use Object Oriented Programming (OOP) here. OOP is very power full. Raspberry Pi (RPi) is a single board computer.

Chapter 2

Description of familiarization work carried out

Chapter 3

Exposure to systems (HSE, Financial, Administration, Logistics, etc.)

Chapter 4

Project Work

By title the project that I was assigned, was ***Machine vision based Real time Motion Planning for an Industrial Articulated Robot Arm***. In simple words it was a project related to an automatic pick and place machine which can be used to pick objects placed on a conveyor belt and pass them to the next stage of processing.

My contribution to that project was to develop the following three aspects of the system.

I. Development of an object detection framework:

II. Development of an application to train an object classification model

III. Development of an application for camera calibration

Subsequent sections will thoroughly explain the mentioned sub projects that were undertaken by me.

4.1 Development of an Object Detection Framework

An Object Detection Framework was developed to be deployed in an Automatic Pick and Place Machine. The framework is capable of, identifying regions of interests (ROIs), detecting and classifying objects, determining location and orientation of objects with respect to a real world coordinate system for grasping (picking).

Chapter 5

Hands on experiences

Chapter 6

Soft Skills Development

Chapter 7

SWOT Analysis of the organization and self

Chapter 8

Conclusion: Own perspective of areas to be improved (of the whole training process including self)

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