## REFERENCE LIST

[1] Rossi Passarella, Bambang Tutuko \& Aditya P.P. Prasetyo, Design Concept of Train Obstacle Detection System in Indonesia, 2011, PP 455-456
[2] H. Ben Brown, Jr., Gregg Podnar, Mel Siegel, Rail- Scout, A Concept for Reducing Railway Accidents , 2005, PP 1-4
[3] B.K.P. Horn and B.G. Schunck, "Determining Optical Flow", Artificial Intelligence, 1981, Vol 17, PP 185-203
[4] Lanka Udawatta and Buddhika Jayasekara, "Image Processing Based Application", Computer Aided Simulations, 2009, PP 227-236
[5] Future Electronics Egypt Ltd. (Arduino Egypt), Servo Motor Control \& Arduino, 2014, PP 1- 6
[6] MATLAB Central, Articles on usage of Arduino Simulink Blocks, MATLAB 2014b, 2014
[7] Math (10)ks, Blop Analysis. MATLAB 2014b, 2014 1
[8] Paul Merrell, Dah-Jye Lee; Randacbeard, Statistical analysis of multiple optical flow values for estimation of unmanned aerial vehicle height above ground, 2004
[9] Ying Wu, Optical Flow and Motion Analysis, EECS432- Advanced Computer Vision Notes Series 6, 2001
[10] Didi Sazbon, Hector Rotstein, Ehud Rivlin, Finding the focus of expansion and estimating range using optical flow images and a matched filter, Machine Vision and Applications, 2004, PP 234 - 236
[11] http://cs.stanford.edu/people/eroberts/courses/soco/projects/1997-98/computervision/motion.html, 2006
[12] Shahriar Negahdaripour, Berthhold K. P. Horn, A Direct Method for Locating the Focus of Expansion, Computer Vision, Graphics and Image Processing 46, 1989, Page 320
[13] Wikipedia, Closed - Circuit Television Camera, 2014
[14] Thomas Brox, Jitendra Malik, Object Segmentation by Long Term Analysis of Point Trajectories, 2011, Page 282-294
[15] Ce Liu, Beyond Pixels; Exploring New Representations and Applications for Motion Analysis, 2009, Page 81- 85
[16] Yong- Ren pu, Li Wei Chen, Su- Hsing Lee, Study of Moving Obstacle Detection at Railway Crossing by Machine Vision, 2014, Page 2611-2612
[17] Anjali Jain, Dr. Neeraj Tiyagi, Collision Detection and Avoidance in Railways using WiMAX, 2012, Page 789-794
[18] Richard Hartley and Andrew Zisserman, Multiple View Geometry in Computer Vision, 2000, Page 1-43


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## Appendix- A Letter of Request

Towns North of Celombo Water Supply Project,
Kandana,
$20^{6}$ September 2011

Through Addl. General Manager,


Training Center,
Thelawala,

Dear Sir,

A.L.S. Sriwardene

## Appendix- B Letter of Obtaining Statistics from Railway


 National Water Supply \& Drainage Board


## Request for Obtaining Statistics

Thankint You,
Your Farhfully,

W. 8 M Fevakrana Mulazirt

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## MINISTRY OF WATER SUPPLY \& DRAINAGE

"Water - Every Drop is Prediees"

## Appendix- C Letter of Requesting to Test Prototype



10 April 2014
To General Manager
Sritankat Raihnays,

Sir,

Request to Test a Prototype of Obstacle Detection System for Trains.
 deace in his reyearch propert leariag to a degree af Master of soience in the Dopartmat af


1-4 (3) Electronic Theses \& Dissertations


Binark yous,

Dr AGIBP Jayasekar:

Department of tlectrical Engneoring Umepesfy of Maratuwa
Morafurva 10400 Sift bankal
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thone +94112600404
(2x 194112650622


## Appendix- D Financial Expenditure for preparing Prototype Model

The financial expenditure for a prototype model with high accuracies will be much reasonable as follows;

Table D Financial Expenditure for preparing Prototype Model

| Item No. | Description | QTY | Rate (\$) | Amount (\$) |
| :---: | :---: | :---: | :---: | :---: |
| 01 | CCTV Cameras | 02 | 250 | 500 |
| 02 | Personal Computer <br> (Core i5) | 01 | 1000 | 1000 |
| 03 | Arduino (UNO) <br> Hardware | 01 | 30 | 30 |
| 04 | Servo Motor | 01 | 20 | 20 |
|  | MAT LAB Software Moratuwa, Sri Lanka. |  |  | 300 |
|  | Accessorms (winhesses \& Pissertations 10 |  |  | 10 |
|  | Total |  |  | 1860 |

