Mark Collins

Employment of low-cost low-power ARM machines as tracking device for real time vehicle movement

Bachelor Thesis

YOUR KNOWLEDGE HAS VALUE



- We will publish your bachelor's and master's thesis, essays and papers
- Your own eBook and book sold worldwide in all relevant shops
- Earn money with each sale

Upload your text at www.GRIN.com and publish for free



Bibliographic information published by the German National Library:

The German National Library lists this publication in the National Bibliography; detailed bibliographic data are available on the Internet at http://dnb.dnb.de .

This book is copyright material and must not be copied, reproduced, transferred, distributed, leased, licensed or publicly performed or used in any way except as specifically permitted in writing by the publishers, as allowed under the terms and conditions under which it was purchased or as strictly permitted by applicable copyright law. Any unauthorized distribution or use of this text may be a direct infringement of the author s and publisher s rights and those responsible may be liable in law accordingly.

Imprint:

Copyright © 2013 GRIN Verlag ISBN: 9783656680734

This book at GRIN:

Mark Collins

Employment of low-cost low-power ARM machines as tracking device for real time vehicle movement

GRIN - Your knowledge has value

Since its foundation in 1998, GRIN has specialized in publishing academic texts by students, college teachers and other academics as e-book and printed book. The website www.grin.com is an ideal platform for presenting term papers, final papers, scientific essays, dissertations and specialist books.

Visit us on the internet:

http://www.grin.com/

http://www.facebook.com/grincom

http://www.twitter.com/grin_com



UNIVERSITY OF LINCOLN

Can a low-cost low-power ARM machine be employed to track the real time movement of vehicles?

By: Mark Edward Collins

A Dissertation Report submitted in part fulfilment of the examination requirements for the award of a B.Sc (Hons) Computer Science awarded by the University of Lincoln.

July 2013. Supervised by Dr.

Acknowledgements

This project would have not been possible without the tremendous help of others. I would like to acknowledge the support provided by my friends and family whom I saw very little during the preparation of my final year project. A special gratitude is offered to the following people, whose guidance and assistance enabled this dissertation.

Dr. Bashir Al-Diri for your continual assistance and feedback offered throughout this project. I am truly indebted to you for the around the clock use of equipment, along with the support direction and guidance you offered throughout the year.

Dr. John Murray for your assistance with areal photography making use of your Quadrocopter, thank you for your patient weather restricted time scheduling.

Mr. Shane Francis to whom I owe a sincere and earnest thanks, your help and ability with all things Linux were crucial to both this year, and the completion of this project.

Mr. Alaa Al-Zoubi, your advice played a significant impact on the improvement of the end background subtraction method.

Special thanks Raspberry Pi foundation, the existence of which this entire dissertation relied upon.

Gratitude must be placed with the University of Lincoln Library and Security staff allowing me to spend countless hours in their facilities. Along with being patient and appreciated when I had '*just one more sentence*' at closing time.

Intel and those contributing towards keeping and maintaining the open source nature of Ubuntu, ArchLinux & OpenCV.

Friedlieb Ferdinand Runge, the German scientist who first isolated caffeine from coffee in 1820, without whom this genuinely would not have been possible. An honourable mention goes out to the 24 hour convenience store near my house for selling me 24 cans of the substance for the princely sum of $\mathfrak{L}6$. My brain and academic ability thanks you, my body does not.