

RFID BASED LIVESTOCK MANAGEMANT

This report submitted to Graduate School in partial fulfillment of requirement for the degree Master of Science (Technopreneurship), Universiti Utara Malaysia.

By:

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BUSINESS PLAN

PROJECT TITLE:

RFID BASED LIVESTOCK MANAGEMANT

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**MSC TECHNOPRENEURSHIP
UNIVERSITI UTARA MALAYSIA**

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KOLEJ SASTERA DAN SAINS
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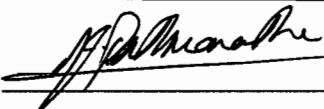
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EXECUTIVE SUMMARY

This business plan introduces the product or services that offered by Reezmost Venture. Reezmost offer complete package of Radio Frequency Identification (RFID) solution for agriculture field focusing on livestock tagging.

Reezmost is founded in 2009 in Penang. In the very beginning, Reezmost is operated at Technopreneur Incubator Center in Universiti Utara Malaysia. Reezmost is created by Hayu Rahiza Ramli. She has a lot of experience in Information Technology field.

Reezmost started this business because this field had started to take place in this country. At the moment, as average livestock in Malaysia is manually managed without systematic method. This will cause errors and most of them are human errors. In addition, there are too many weaknesses which are hard to solve with manual method such as accident, lost, stolen, disease spreading that involve many stakeholders.

Based on IDTechEx, the largest market using RFID technology is animal, food and livestock. This technology gives advantage to food chain including control disease and food preparation. This will be a priority requirement in Malaysia to be a worldwide Halal Hub.

The other reason is the performance of RFID tags and readers is amazing. The RFID devices can be used in weather including rain, flood or dry area compare to microchip which is easily malfunctioning for certain weather.

The various advantages in RFID technology that makes Reezmost interested to combine this technology and software application to be used in many field in Malaysia. Reezmost would like to participate in country development from information technology aspect. Reezmost hope that will offer high quality product and services up to customer satisfaction level.

RINGKASAN EKSEKUTIF

Rancangan perniagaan ini memperkenalkan produk dan perkhidmatan yang ditawarkan oleh Reezmost Venture. Reezmost menawarkan pakej lengkap bagi penyelesaian berdasarkan teknologi Pengenalan Radio Frekuensi (RFID) dalam bidang agrikultur yang memfokuskan kepada haiwan ternakan.

Reezmost ditubuhkan pada tahun 2009 di Kedah. Untuk permulaan Reezmost beroperasi di Pusat Inkubator Teknousahawan di Universiti Utara Malaysia. Reezmost diasaskan oleh Hayu Rahiza Ramli. Hayu Rahiza mempunyai pengalaman yang luas dalam bidang Teknologi Maklumat.

Reezmost memulakan perniagaan ini kerana melihat bidang ini mula mendapat tempat di negara ini. Pada masa kini, secara puratanya pengurusan ternakan di Malaysia diurus secara manual tanpa menggunakan kaedah yang sistematik. Hal ini akan menyebabkan ralat yang berpunca daripada kelalaian manusia akan menimbulkan masalah. Tambahan pula, terlalu banyak kelemahan yang sukar untuk diselesaikan dengan menggunakan kaedah manual seperti kemalangan, kehilangan, kecurian, penyebaran penyakit tentang haiwan ternakan yang melibatkan campur tangan pelbagai pihak.

Menurut IDTechEx, pasaran terbesar menggunakan teknologi RFID adalah dalam industri haiwan, makanan dan ternakan. Teknologi ini memberi kebaikan dan kelebihan terhadap rantaian makanan termasuk kawalan penyakit dan penyediaan

makanan. Ini menjadi keperluan di Malaysia terutamanya untuk menjadi Hub Halal dunia.

Alasan lain pula ialah prestasi label dan pembaca RFID adalah sangat membanggakan. Peralatan RFID boleh digunakan dalam pelbagai cuaca termasuklah hujan, banjir dan kemarau berbanding dengan mikrochip yang mudah rosak bagi beberapa keadaan cuaca.

Pelbagai kelebihan dalam teknologi RFID menyebabkan Reezmost berminat untuk menjadikan kombinasi antara teknologi ini dan perisian untuk diaplikasikan dalam pelbagai bidang di Malaysia. Reezmost ingin menyumbang kearah pembangunan negara dalam aspek teknologi maklumat. Reezmost berharap dapat mengeluarkan produk dan perkhidmatan yang berkualiti tinggi untuk kepuasan pelanggan.

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CHAPTER ONE

INTRODUCTION

1.0 Project Background

After the bird flu virus killed 83 tigers at the Sri Racha Tiger Zoo last year, officials tried to identify the shops that had sold the infected chicken carcasses. This situation could have been very different if there had been an implementation of Radio Frequency Identification (RFID) technology because RFID can be used on farms to tag animals and the information can be carried throughout the food chain process.

Nowadays the livestock management in Malaysia is manually managed without proper identification system used to manage the animals. In this case, the human error factor can be a persistent problem. Furthermore, there are so many disadvantages that cannot be recover in livestock matters such as accident, missing, stolen, spread of disease about livestock and these involves many stakeholders.

According to IDTechEx, the largest market for RFID will be in animals, food and farming and this is shown in Figure 1. It is because adopting RFID will benefit the food supply chain, including livestock disease control and the merchandising of prepared food. This is vital for Malaysia, especially in becoming the Halal Food Hub of the world.

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REFERENCES

- Fosso Wamba, S., Bendavid, Y., Lefebvre, L.A., Lefebvre, E. (2006) *RFID Technology and the EPC Network as Enablers or Mobile Business: a Case Study in a Retail Supply Chain*. International Journal of Networking and Virtual Organisations (IJNVO), Vol. 3, No. 4, 450-462.
- Lai, F., Hutchinson, J. (2005) *Radio Frequency Identification (RFID) in China: Opportunities and Challenges*. International Journal of Retail & Distribution Management, Vol. 33, No. 12, 905-916.
- Asif, A., Mandviwalla, M. (2005). *Integrating the Supply Chain with RFID: A Technical and Business Analysis*. Communications of the Association for Information Systems, Vol. 15, 393-427.
- Linda Castro and Samuel Fosso Wamba (2007). *An Inside Look of RFID Technology*. Journal of technology Management and Innovation, March, Vol. 2, No. 1, 128-141.
- Dr Peter Harrop and Glyn Holland. (2007). *RFID for Animals, Food and Farming 2008-1018*. Retrieved October 20, 2008 from IDTechEx: Printed Electronics, RFID & Energy Harvesting Research, website: http://www.idtechex.com/research/reports/rfid_for_animals_food_and_farming_2008_2018_000168.asp.
- Dr Peter Harrop and Glynn Holland. (n.d.). *RFID for Animals, Food and Farming – The Largest Market of All*. Retrieved October 20, 2008 from IDTechEx: Printed Electronics, RFID & Energy Harvesting Research, website: http://www.idtechex.com/research/articles/rfid_for_animals_food_and_farming_the_largest_market_of_all_00000729.asp.
- Glynn Holland and Dr Peter Harrop. (2005, February). *Food and Livestock Traceability*. Retrieved October 21, 2008 from IDTechEx: Printed Electronics, RFID & Energy Harvesting Research, website: http://www.idtechex.com/research/articles/food_and_livestock_traceability_0000147.asp

- Raghu Das and Dr Peter Harrop. (2009, April). *RFID Forecasts, Players and Opportunities 2009-2019*. Retrieved May 3, 2009 from IDTechEx: Printed Electronics, RFID & Energy Harvesting Research, website: http://www.idtechex.com/research/articles/food_and_livestock_traceability_00000147.asp
- Glynn Holland and Dr Peter Harrop. (2006, Feb). *Food and Livestock RFID: Where, Why, What, Next*. Retrieved October 21, 2008 from IDTechEx: Printed Electronics, RFID & Energy Harvesting Research, website: http://www.idtechex.com/research/articles/food_and_livestock_rfid_where_why_what_next_00000434.asp.
- Claire Swedberg (2007, November). *Food and Livestock Tagging Expected to See Bumper Gains*. RFID Journal – RFID (Radio Frequency Identification) Technology News & Features. doi: <http://www.rfidjournal.com/article/articleview/3725/1/1/>
- Brian Colleran (2008, July/August). *Think Before You Eat: The Widespread Effects of Factory-Farmed Meat*. The Environmental Magazine. doi: http://findarticles.com/p/articles/mi_m1594/is_4_19/ai_n28023872/
- Dan W. Webb (2006, May). *Using Radio Frequency Identification (RFID) for Dairy Cattle Management*. Proceedings 43rd Florida Dairy Production Conference, Gainesville, May2, 2006. 33-36
- Anita Campbell (2005, June). *RFID to Fight Mad Cow Disease*. Retrieved October 24, 2008 from The RFID Weblog – Implementation and Application of RFID Technology, Website: http://www.rfid-weblog.com/50226711/rfid_to_fight_mad_cow_disease.php
- Southfork Solutions (n.d.) *Real Life Applications: Alternate RFID Technologies for Commercial livestock Use* [PowerPoint Slides]. Retrieved from National Institute for Animal Agriculture. Website: <http://www.animalagriculture.org/Solutions/Proceedings/Annual%20Meeting/2009/Animal%20ID/Fogt,%20Niels.pdf>
- Kevin C. Dhuyvetter and Dali Blasi. *A Guide for Electronic Identification of Cattle*. Retrieved October 20, 2008 from RFID Survey: BeefStocker USA, website: www.beefstockerusa.org/rfid.

Tracking and tracing – *Key Issues for Veterinary Practice*. Retrieved October 20, 2008 from Core RFID: Suppliers of RFID and Barcoding Technologies, website: www.corerfid.com.

Social Science Libraries and Information Services. *Economic Growth Center Collection – Malaysia*. Retrieved October 20, 2008 from Yale University library, website: <http://www.library.yale.edu/socsci/egcmalay.html>

Department of Veterinary Services, Malaysia. *Livestock / Livestock Product Statistics*. Retrieved October 21, 2008 from: AgroLink, website: <http://agrolink.moa.my/jph/dvs/statistics/statidx.html>

Leong, K.S., M. L., Engels, D. W. (2005) EPC Network Architecture. Retrieved October 22, 2008 from Auto-Audi Labs: Auto-Audi Labs, website: <http://www.autoidlabs.org/uploads/media/AUTOIDLABS-WP-SWNET-012.pdf>.

Christina Paschen (2006). *Keeping Fresh Foods Fresh*. Retrieved October 22, 2008 from RFID Journal, website: <http://www.rfidjournal.com/article/articleview/2137/4/340/>.