



1. Contributors

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Capacity Involved	: Co-Inventor / Co-Originator (UTM Staff)	Postcode/ State	: 81310/ JOHOR

2. Title of the Invention/ Design/ Representation of trade mark

Concept of Multipurpose 3D Cadastre for 3D Property Rights

3. State the invention. Please choose more than one. (if necessary) to best describe your invention.

New Use	<input checked="" type="checkbox"/>	An Improvement	<input type="checkbox"/>	A Device	<input type="checkbox"/>
A Process/ Method	<input type="checkbox"/>	A Product	<input type="checkbox"/>	A Mark	<input type="checkbox"/>
A Design	<input checked="" type="checkbox"/>	Software	<input type="checkbox"/>	Others	<input type="checkbox"/>

4. Brief description of the invention. For trademark, give list of goods/ services.

The Concept of Multipurpose 3D Cadastre for 3D Property Rights in Malaysia is a new concept of establishing 3D property rights for properties that located above the surface. There are three scenarios of airspace rights. The first relates to shop houses above a public road. Here, the individual shop houses above public road are given separate titles without having any right to the ground surface. The owners of the individual shop houses are given an easement to access their properties from the adjacent properties. The second scenario is a sky-bridge above a canal. Here, the sky-bridge is given a separate title without rights to the ground surface, but the entrance to sky-bridge (building support) is given limited rights to the ground surface. The owner of sky-bridge is given an easement to access his property from the adjacent building or he can also have access from the entrance that has limited rights to the ground surface. The owner of the sky-bridge is allowed access through easement from the adjacent property to access his property from two entrance points. The third scenario is regarding a building (e.g. restaurant, indoor stadium) above a public road. Here, the building above the public road is given a separate title without rights to the ground surface, but the entrance to the building (building support) and others building support (e.g. concrete beam) are given limited rights to the ground surface.

5. Full Description of invention/ Representation of Design (excluding trademark). Provide drawings and other materials that help illustrate the description, if any

The Concept of Multipurpose 3D Cadastre for 3D Property Rights in Malaysia is a new concept of establishing 3D property rights for properties that located above the surface. From the history of the Malaysian land tenure system, a property can be recognized in three dimensions, viz. on surface, above surface and below surface. Nevertheless, the Malaysian land administration system does not recognize rights and titles in one of the abovementioned dimensions independently from the other two dimensions. Owing to the lack of knowledge about 3D property concept, there is an exception of properties that are above surface right independent of ground surface. It is clear that the use of airspace and subsurface is on the rise, therefore, legal conflicts may arise when different activities are located on different levels of space. Experience has shown that handling such situations within the existing traditional property formation framework does not allow for the provision of a clear insight into the related property rights, and this framework might no longer be applicable in future cases involving more complex situations.

The current Section 57(3)(b) of Strata Titles Act 1985 (Act 318) allows owners of strata title units to have rights to the surface of the land where the owners have undivided shares on that piece of land under the strata scheme. However, there is no provision for having strata titles without having rights to the land surface. Hence, ownership to an above-ground property is not permissible without concurrent ownership and rights to the ground located below that property (Strata Titles Act 1985, 2010). Although Section 75A of National Land Code 1965 (Act 56) allows sharing the airspace above a road reserved for a non-strata scheme, however, such sharing is only valid for a period of 21 years, and this provision is not allowed for land except State reserved land, and any development that is not profit-oriented (National Land Code 1965, 2010).

Malaysian legislation recognises rights to airspace on private and State land. The right over private land and Electricity Supply Act 1990 (Act 447) is independent of the title to the surface of the given land (Electricity Supply Act 1990, 2007). The right to airspace is given/recognized under Section 75A of National Land Code 1965 (Act 56) but this right is limited in term or period, i.e. 21 years, provided the term is not renewed after its expiry. The law does not provide for titles to airspace independent from the title to the surface.

To resolve this problem, it is suggested that State authority recognized the surface, below surface and above surface, whereby the title to airspace or underground stand-alone without having title to the surface. The authority should accordingly issue a totally separate title or independent title to a property above the ground surface (airspace) with some limited rights to the surface.

There are three scenarios of airspace rights. The first relates to shop houses above a public road. Here, the individual shop houses above public road are given separate titles without having any right to the ground surface. The owners of the individual shop houses are given an easement to access their properties from the adjacent properties. The second scenario is a sky-bridge above a canal. Here, the sky-bridge is given a separate title without rights to the ground surface, but the entrance to sky-bridge (building support) is given limited rights to the ground surface. The owner of sky-bridge is given an easement to access his property from the adjacent building or he can also have access from the entrance that has limited rights to the ground surface. The owner of the sky-bridge is allowed access through easement from the adjacent property to access his property from two entrance points. The third scenario is regarding a building (e.g. restaurant, indoor stadium) above a public road. Here, the building above the public road is given a separate title without rights to the ground surface, but the entrance to the building (building support) and others building support (e.g. concrete beam) are given limited rights to the ground surface.

Finally, it is proposed that 3D properties above surface - with or without rights to the ground surface - be formally recorded in the Document of Title and Certified Plan to facilitate identification in registration and land survey. The Document of Title and Certified Plan should be presented as follows: (i) title with only one dimension, i.e. whether dimension above surface or dimension on surface or dimension below surface, (ii) title with two dimensions, i.e. the combination of dimension on the land surface and dimension above surface, and (iii) title with all three dimensions, i.e. dimension above surface, dimension on surface and dimension below surface. There should also be new land administration guidelines and survey regulations for 3D properties, independent of ground surface with limited rights or without rights to the ground surface.

6. Date, place of invention/ design and by whom invented/ designed

Date : 01/12/2015
Place : Universiti Teknologi Malaysia
Name(s) :
1. TAN LIAT CHOON
2. KHADIJAH BT HUSSIN

7. Prior Art/ Prior Design/ Trademark Search

a) Is there any earlier work of the same kind of which you know (Prior Art/Prior Designs/Trademark Search). If yes, please include details of and/or attach copies of relevant publications or search report.

No

Describe briefly the similarities (if any) and differences between the disclosed invention and closet known technology (excluding trademark application).

8. State the problem that your disclosed invention is solving

1. Problem : Owing to inadequate illustration of separate rights in 3D property in the land and cadastral legislations, some 3D properties do not receive full recognition and protection.
Solution : To recognize separate (independent) titles to airspace, surface and subsurface

9. Past Disclosure/ Publication

Has the invention / design been disclosed or published?

If 'yes', please give details, indicate date of disclosure / publication and attach a copy of the publication.

Date :
Title :
Description :

If 'yes', was a confidential or Non-Disclosure Agreement in place?

Date :
Title :
Description :

10. Intended Disclosure / Publication

Is it intended to disclose details of the invention / design?

If 'yes', please give details and indicate date of intended disclosure / publication.

Date :
Title :
Description :

11. Potential Commercialization (Please complete an InnoComm Evaluate Form at main tab).

List the key commercial benefits of the invention.

Any other relevant information e.g. potential route for commercialization, companies that may be interested, alternative markets that the invention may be used in. etc.

12. Internal / External Funding.

Please give details of All internal or external funding, which has been used in connection with this project, including grants, contracts, studentships, etc.

13. External Collaboration.

Has any of this work been carried out elsewhere?

If 'yes' please tick as appropriate.

Other academic institution
Previous Employment
Industrial Collaborator
Others

Please give details and attach a copy of any agreement signed.

14. Other relevant information (if any).

The information which is provided on this form will be user by the University to access the ownership of the intellectual property rights, potential third party claims to those rights and obligations to external sponsors. Incorrect or incomplete detail could lead, the reduction or loss of commercialization revenues, or the invalidation of paten applications.

I declare that the information which I have provided in this form is, to the best of my knowledge and belief, correct and complete and that the contributors named are all the original creators of this invention/design. I also agree to cooperate in seeking or other legel protection in the name of Universiti/Institution and in the commercialization of this invention/design. I also confirm that I have notified the University/Institution of any conflict of interest which may exist in relation to the invention.

Signature _____
Name of Inventor/ Originator TAN LIAT CHOON
Category Main Inventor / Main Originator
Approximate % Contribution 70.0%
Date 25-Jan-2016

Signature _____
Name of Inventor/ Originator KHADIJAH BT HUSSIN
Category Co-Inventor / Co-Originator
Approximate % Contribution 30.0%
Date

Witnessed by :	
Signature of the Director of Research Alliance/ School/ Research Institute/ Center :	
Name	
Date	



Innovation and Commercialization Centre
Universiti Teknologi Malaysia

InnoCom Evaluation Systems
(Researcher)

a) Project Details

- i. Project Title : Concept of Multipurpose 3D Cadastre for 3D Property Rights
- ii. Name of Researcher : TAN LIAT CHOON
- iii. Faculty/ Research Alliance : FAKULTI GEOINFORMASI DAN HARTA TANAH

b) Evaluation Systems

Please evaluate and give a score to each of these elements for the technology/ product given. Each technology or product should be scored from 0 (very poor) to 5 (excellent) for each dimension.

1. Patent Protection (strenght of patent)

- A broad scope, family of patents, granted worldwide, which covers several interlinked aspects of the technology 5
- A broad scope, single patent, granted worldwide, which covers the fundamentals of the technology, or for a very major suite of softwares that would take many years to duplicate 4
- A broad scope, strong patent application, or an incremental technology or significant new development of existing technology 3
- A narrow scope of patent, less significant development of the existing technology, or extensive know-how 2
- An interesting research result which might be protectable 1
- A bare idea, with no evident uniqueness or protectability 0

2. Readiness of the technology

- The technolog is well proven and a process for volume manufacture has already be proven by manufacture of significant quantities (or is trivial, as for example, with software duplication) 5
- The technology has a prototype, successfully completed on field testing with real customers and a small-scale manufacturing proess has been demonstrated. 4
- The technology a prototypes stage, works well in the laboratory, but has not yet been tested by customers. Manufacture seems to be relatively straightforward in theory. 3
- The technology has proof of concepts stage, can be made to work sometimes in the laboratory, though this is still considerable black art in doing it repeatedly. Not much thought has yet been given to larger scale manufacture. 2
- Closely related technologies have been made to work in this lab, and there seems to be no theoretical reason why this one shouldn~t work too (need further research and testings). 1
- The technology should work in theory, but hasn~t yet been tried (ideation stage). 0

3. Value of the Market

- The worldwide market for this product and its direct competitors is likely to be in excess of RM1 billion p.a 5
- The worldwide market is likely to be in excess RM100 million p.a 4
- The worldwide market is likely to be in excess RM30 million p.a 3
- The worldwide market is likely to be in excess RM10 million p.a 2
- The worldwide market is likely to be in excess RM3 million p.a 1
- The worldwide market is likely to be less than RM3 million p.a 0

4. Anticipated profit margins (if considering a license, score on the anticipated royalty rate)

- The gross profit margin per sale is likely to be over 70% (royalty >7%) 5
- The gross profit margin per sale is likely to be over 50% (royalty >5%) 4
- The gross profit margin per sale is likely to be over 30% (royalty >3%) 3
- The gross profit margin per sale is likely to be over 20% (royalty >2%) 2
- The gross profit margin per sale is likely to be over 15% (royalty >1%) 1
- The gross profit margin per sale is likely to be under 15% (royalty <1%) 0

5. Intensity of Competition in the Market

- This is a brand new market, and there are currently no actual or potential competitors. 5
- The market is relatively new, and the competitors are very small firms which have no current technological or marketing lead. 4
- The market is relatively new, and the competitors are still relatively small, though some may have a small lead in some areas, or have access to significant venture funding. 3
- The market is becoming established, and competitors have grown to medium size (RM5m plus sales p.a.) and gained a reputation as market leaders. 2
- The market is well established, and the competitors are already substantial companies with the ability to quickly adopt or duplicate new technologies. 1
- The market is mature, and is dominated by a few multinational companies with major research capabilities, marketing reach and financial muscle. 0

6. Competitive Edge of your product or service/unique selling point

- The product service is several times as good as the competition in one or more customer-critical areas, and is not worse in any other areas. 5
- The product or service is significantly better than the competition in at least one customer-critical area, and is not worse in other areas. 4
- The product or service is marginally better (e.g. 25% better in at least one customer-critical area), and is not worse in other areas, or is significantly better in one area, but has minor disadvantages in other less critical areas. 3
- The product or service is marginally better (e.g. 25% better) compared to the competition in at least one customer-critical area, but has disadvantages in other less critical-areas. 2
- The product or service has advantages over the competition in one or more areas, but they do not appear to be areas that are critical to the customer. 1
- The product or service has no evident advantages over the competition. 0

7. Ease of access to the Market

- The potential customers worldwide have already been listed (or can very easily be listed) and sales contacts can be initiated as soon as the product is completed, or well-established worldwide distributors are enthusiastic. 5
- The potential customers or enthusiastic distributors can be easily listed in some territories, and it appears that with enough work, other territories can be brought up to the same level. 4
- The potential customers and distributors can be described in general, and there are no evident barriers to accessing them, though generating the lists would be significant work. 3
- It is fairly unclear what the profile of the potential customers is, or the profile is clear but there are some significant barriers (e.g. regulatory approval) to reaching them. 2
- Some potential customers can be described, but there are substantial barriers (e.g. regulatory approval, comply with applicable standards) preventing short-term access to them. 1
- Some potential customers can be described, but the barriers to reaching them are very substantial. 0

8. Commitment and motivation of the team

- The inventors and other members of the team are willing to take risks to leave their current jobs, invest life savings in order to see the commercial opportunity realized (i.e. they form a spin-off company using their own savings at the beginning, to show confidence in their technologies). 5
- The inventors and other members of the team are willing to take full-time leave of absence from their current jobs, and invest meaningful sums (e.g. 25% or more of their annual salary) (i.e. the business model is to form a spin-off company while looking for more funding). 4
- The inventors and other members of the team are willing to spend up to 50% or more of their time on the commercial opportunity, on an agreed split with their current jobs, and to invest modest sums (e.g. 10% or more of their annual salary) (i.e. the business model is to form a joint venture company). 3
- The inventors and other members of the team are willing to spend a small portion of their time (up to 20%) on the commercial opportunity, but are not willing to make even a modest investment. (i.e. the business model is to license the technology to the existing company). 2
- The inventors and other members of the team are willing only to act as consultants, in addition to their normal jobs, providing they are paid consultancy fees, but are not willing to make even a modest investment (i.e. as consultants to the companies that license their technologies). 1
- The investors and other members of the team believe that their research is now finished, and are unwilling to spend any further time on the technologies (assume they have nothing to do with the technologies anymore). 0

9. Business Management and Industry Experience

- The investors and other members of the team had a previous, very successful experience in the management of business(s) in new technology and have broad industry contacts. 5
- The investors and other member of the team had previous, not very successful, experience in the management of business of a new technology, but have strong industry link and feel that they have learnt to do it better next time. 4
- The investors and other members of the team had experience in management of business(s), but the role was relatively narrow (e.g. managing a department, rather than general management) and do not have strong industry contact. 3
- The investors and other members of the team had very little experience in management of the business, (i.e. as an employee) and limited industry contact. 2
- The investors and other members of the team had limited business experience and industry contact. 1
- The investors and other members of the team had no business management experience and industry contact at all. 0

c) **Summary**

No.		Score
1.	Patent Protection (strenght of patent)	0
2.	Readiness of the technology	0
3.	Value of the Market	0
4.	Anticipated profit margins (if considering a license, score on the anticipated royalty rate)	0
5.	Intensity of Competition in the Market	0
6.	Competitive Edge of your product or service/unique selling point	0
7.	Ease of access to the Market	0
8.	Commitment and motivation of the team	0
9.	Business Management and Industry Experience	0
	Total	0
	Total Min	0.0 %



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Pusat Industri, Technovation Park
Universiti Teknologi Malaysia
81310 Johor Bahru
Johor, Malaysia

NABC SCHEME

<u>Opening</u>	<u>What's The Opening?</u>
<u>N</u>	<u>What's the important, quantitative customer and market Need?</u>
<u>A</u>	<u>What's the specific, quantitative Approach to satisfying that need?</u>
<u>B</u>	<u>What are the Benefits per cost from that approach?</u>
<u>C</u>	<u>Who is the Competitor and what are the alternatives now and in future, and why are your benefits per cost superior?</u>
<u>Closing</u>	<u>Closing</u>