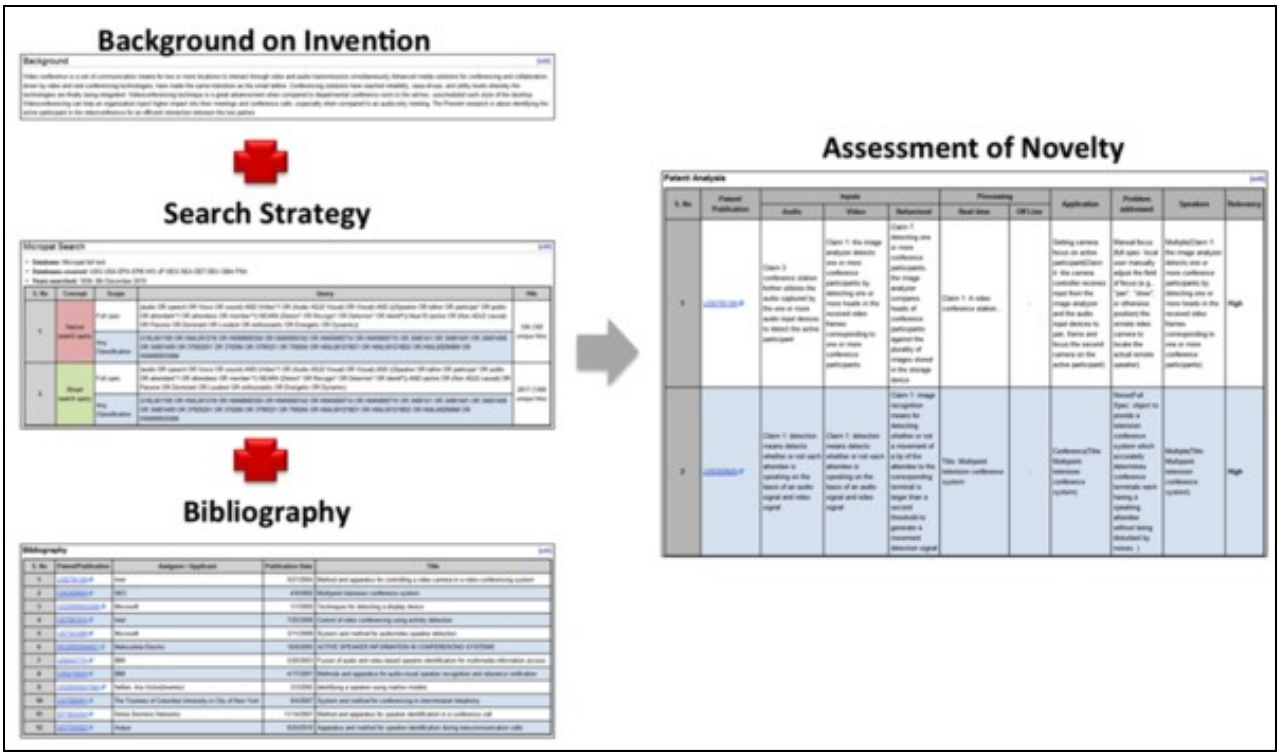
Prior Art Search - Sample

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Sample Methodology for patentability or novelty search



Scope for Sample Patentability Search on Virtual Object Overlay

The scope of the project is to identify the relevant patent/non-patent literature related to **virtual object overlay** before effective filing date. This is a 'hypothetical' invention with a invention disclosure containing sample elements of the invention. Please note that this is a sample report that does not include a complete analysis. It does, however, represent the format of the deliverables and a sample view of the results of a patentability search. Dolcera works with the client closely to tweak the process, and the deliverables to suit company specific needs.

Client documents

- ***Scope of the Disclosure:***

  A method for overlaying real world with virtual objects having the following features:

  - Creating virtual spheres or virtual objects at real world locations by users via their mobile devices.
  - The users who create the virtual objects decide how other users can interact with the virtual objects.
  - The virtual objects can be tied to a time window for future visibility.
  - The virtual objects are based on the user's specifications – the virtual objects can be fixed to a location or moving.

Invention idea

A method for overlaying real world with virtual objects having the following features,

- Creating virtual spheres or virtual objects at real world locations by users via their mobile devices.
- The users who create the virtual objects decide how other users can interact with the virtual objects.
- The virtual objects can be tied to a time window for future visibility.
- The virtual objects are based on the user?s specifications ? the virtual objects can be fixed to a location or moving.

Search methodology

1. Understood the invention by reading invention document provided by the client and divided the invention into multiple elements.
2. Considered keywords from the invention document and collected classes related to the invention based on the technology mentioned in the invention document.
3. Used Google prior-art search tool to identify both patent and non-patent prior-art data.
4. Ran keyword searches in different patent databases such as Thomson Innovation, SIP, Micropat.
5. Ran class based patent search in Thomson Innovation where broad keywords are combined with classifications collected to identify relevant prior-art.
6. Conducted non-patent literature search using keywords to identify relevant prior-art from Google scholar, IEEE search, Scirus.
7. Conducted non-patent literature search using inventor names and citations of prior-art patent documents.
8. Analyzed the search results from different search strategies. Identified the relevant documents, map and mark the relevant context with relevancy for the prior-art identified.
9. Reported the results to the client and discussed on the results.

Search concepts

Virtual reality	Virtual object	Time	Create	Access	Location	Confidure	Overlay	Touch
Augmented reality	Virtual sphere	Duration	Add	Permission	Location based	Configuration	Overalaid	Haptic
VAR scene	Bubble	Period	Addition	Rights	Geo-centered	Specification		Mobile phone
Virtual and/or augmented reality	Real world object	Span	Creation		Geo-coded	Configured		Mobile device
Artificial information	Real world scene	Future availability	Creator		Geo-coordinates			
	Virtual environment scene		Owner					
			User					

Classifications

US classification	Definition
345633	Computer Graphics Processing And Selective Visual Display Systems >> Computer Graphics Processing >> Graphic Manipulation (Object Processing Or Display Attributes) >> Merge Or Overlay >> Placing Generated Data In Real Scene >> Augmented Reality (Real-Time)
455566	Telecommunications >> Transmitter And Receiver At Same Station (E.G., Transceiver) >> Radiotelephone Equipment Detail >> Having Display
455456.1	Telecommunications >> Radiotelephone System >> Zoned Or Cellular Telephone System >> Location Monitoring
IPC classification	**Definition**
G06T001740	Manipulating 3D images, e.g. using CAD graphics workstations
G06T001700	Three dimensional (3D) modelling, e.g. data description of 3D objects
CPC classification	**Definition**
G06T001900	Manipulating 3D models or images for computer graphics
G06T001500	3D [Three Dimensional] image rendering
DWPI classification	**Definition**
T01-J40C	Augmented reality systems
W04-W07E	Virtual and augmented reality

W03-A08E7A	Head-mounted display

Search strategies

Patent search strategies

Patent search strategies are developed using a combination of keywords, classifications, key assignees and inventors known in the space, national patent office databases etc., and combining the results obtained from the different sources. The link below opens a sample search strategy for the invention. The search strategy resulted in a total of 1965 results.

S.No	Patent search database	Scope	Query Timline: 03-25-2014	Hits
1	Thomson Innovation	Claims, Title or Abstract	(object*1 NEAR6 overla*2) AND ((virtual OR augment*2) ADJ2 reality)	120
2		Full spec	(((virtual OR augmented) ADJ1 reality) OR ((virtual ADJ3 augmented) ADJ1 reality) OR ("VAR" ADJ1 scene*1) OR (artificial ADJ1 information)) AND (object NEAR4 overla*2) AND (location*1) AND (time OR duration*1 OR period*1 OR span*1	250
3		Claims, Title or Abstract	((virtual OR augmented) ADJ1 reality) AND (object NEAR4 overla*2) AND (time OR duration*1) AND ((virtual ADJ1 (object*1 OR sphere*1)) AND (location OR (location ADJ1 based))	128
4		Claims, Title or Abstract	((virtual ADJ3 augmented) ADJ1 reality) AND ((object NEAR4 overla*2) AND (time OR duration*1 OR period*1 OR span*1 OR (future ADJ1 availability)) AND (((virtual ADJ1 (object*1 OR sphere*1)) OR (bubble*1) OR (real ADJ1 world ADJ1 object*1)) AND (location OR (location ADJ1 based) OR (geo?centered) OR (geo?coded)	389
5		Claims, Title or Abstract	("VAR" ADJ1 scene*1) OR (artificial ADJ1 information)) AND (object NEAR4 overla*2) AND (time OR duration*1 OR period*1 OR span*1 OR (future ADJ1 availability)) AND ((bubble*1) OR (real ADJ1 world ADJ1 object*1) OR (real ADJ1 world ADJ1 scene*1) OR (virtual ADJ1 environment ADJ1 scene*1)) AND ((geo?centered) OR (geo?coded) OR (geo?coordinate*1))	30
6		Claims, Title or Abstract	(creat*3 OR owner*1) AND (virtual ADJ1 object*1)	16
7		US Classificatin	((345633) OR (455566) OR (455456.1)) AND (((virtual OR augmented) ADJ1 reality) OR ((virtual ADJ3 augmented) ADJ1 reality) OR ("VAR" ADJ1 scene*1) OR (artificial ADJ1 information)) AND (object NEAR4 overla*2) AND (location*1 </nowiki>AND (time OR duration*1 OR period*1 OR span*1	35
8		Claims, Title or Abstract	(((virtual OR augmented) ADJ1 reality) OR ((virtual ADJ3 augmented) ADJ1 reality) OR ("VAR" ADJ1 scene*1) OR (artificial ADJ1 information))	13
	Final-1		**1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8**	**975**
9	Micropat	Claims, Title or Abstract	(object*1 NEAR6 overla*2) AND ((virtual OR augment*2) ADJ2 reality)	45
10		Full spec	(((virtual OR augmented) ADJ1 reality) OR ((virtual ADJ3 augmented) ADJ1 reality) OR ("VAR" ADJ1 scene*1) OR (artificial ADJ1 information)) AND (object NEAR4 overla*2) AND (location*1) AND (time OR duration*1 OR period*1 OR span*1	355
11		Claims, Title or Abstract	((virtual OR augmented) ADJ1 reality) AND (object NEAR4 overla*2) AND (time OR duration*1) AND ((virtual ADJ1 (object*1 OR sphere*1)) AND (location OR (location ADJ1 based))	8
12		Claims, Title or Abstract	((virtual ADJ3 augmented) ADJ1 reality) AND ((object NEAR4 overla*2) AND (time OR duration*1 OR period*1 OR span*1 OR (future ADJ1 availability)) AND (((virtual ADJ1 (object*1 OR sphere*1)) OR (bubble*1) OR (real ADJ1 world ADJ1 object*1)) AND (location OR (location ADJ1 based) OR (geo?centered) OR (geo?coded)	15
13		Claims, Title or Abstract	("VAR" ADJ1 scene*1) OR (artificial ADJ1 information)) AND (object NEAR4 overla*2) AND (time OR duration*1 OR period*1 OR span*1 OR (future ADJ1 availability)) AND ((bubble*1) OR (real ADJ1 world ADJ1 object*1) OR (real ADJ1 world ADJ1 scene*1) OR (virtual ADJ1 environment ADJ1 scene*1)) AND ((geo?centered) OR (geo?coded) OR (geo?coordinate*1))	25
14		Claims, Title or Abstract	(creat*3 OR owner*1) AND (virtual ADJ1 object*1)	8
	Final-2		**9 OR 10 OR 11 OR 12 OR 13 OR 14**	**450**
15	SIP	Claims, Title or Abstract	(((virtual OR augmented) ADJ1 reality) OR ((virtual ADJ3 augmented) ADJ1 reality) OR ("VAR" ADJ1 scene*1) OR (artificial ADJ1 information))	21
16		Claims, Title or Abstract	(object + overla + virtual + reality	55
17		Claims, Title or Abstract	(VAR scene) + (object OR overlap) + (time OR duration OR period OR span) + (bubble*1) + ((geo centered) OR (geo coded) OR (geo coordinate*1))	90
18		Claims, Title or Abstract	(creat*3 + virtual + object)	76

	Final-3	**15 OR 16 OR 17 OR 18**	**240**
	Combined Final Results	**Final-1 OR Final-2 OR Final-3**	**1965**

Non-patent search strategies

Non patent search strategies, like patent searches use multiple sources of information including Google Scholar, Scopus etc. The link below opens a sample search strategy for the invention.

Non Patent literature database	Query Timeline: 03-25-2014	Hits
Google Patents	user create virtual object ~overlaid real world location time mobile	**1430**
	virtual sphere bubble with location information mobile application (haptic OR touch)	**4350**
	~access virtual bubble through mobile in augmented reality	**3460**
	~create virtual bubbles for future access augmented reality	**2410**
	augmented reality virtual bubbles	**94**
	(~create "virtual object" location time real world mobile)	**1**
IEEE scholar	virtual sphere bubble with location information mobile application "augmented reality"	**152**
	create virtual bubbles for future access "augmented reality"	**456**
	create ("virtual object" OR "virtual sphere" OR "bubble") location time ("augmented reality" OR "virtual reality") haptic	**4460**
	create ("virtual object" OR "virtual sphere" OR "bubble") "geographic location" time ("augmented reality" OR "virtual reality")	**170**
	(create ("virtual object" OR "virtual sphere" OR "bubble") location time ("augmented reality" OR "virtual reality"))	**403**
Scirus	virtual sphere bubble with location information mobile application "augmented reality"	**143**
	create virtual bubbles for future access "augmented reality"	**759**
	create ("virtual object" OR "virtual sphere" OR "bubble") location time ("augmented reality" OR "virtual reality") haptic	**2567**
	create ("virtual object" OR "virtual sphere" OR "bubble") "geographic location" time ("augmented reality" OR "virtual reality")	**1345**
	(create ("virtual object" OR "virtual sphere" OR "bubble") location time ("augmented reality" OR "virtual reality"))	**94**

Analysis: Applicable patent references found

The 1965 results obtained from the search are manually analyzed to short-list and document the most relevant and related references. A USC. 35, 102/103 assessment is done, if required by the client. This sample does not include a 'legal' recommendation.

S.No	Patent/Publication number	Element-1: Creating virtual spheres or virtual objects at real world locations by users via their mobile device	Element-2: The users who create the virtual objects decide how other users can interact with the virtual objects	Element-3: The virtual objects can be tied to a time window for future visibility	Element-4: The virtual objects are based on the user?s specifications ? the virtual objects can be fixed to a location or moving	Relevancy
1	WO2012155179A1	**Description: Column 5, Line 32**When the user creates a new virtual object a list of template canvases will be presented to act as the "starting point" for the new object. In this example the user device are in the form of, smart phones 108, tablet computer devices 110, notebook computer 112 and mobile computing device 114, the mobile computing device may for instance be a navigation system or	**Description: Column 3, Line 12**comprise a step of receiving data representing a user input signifying a user initiated interaction with a virtual object. The user initiated interaction can include any one of: the user using the virtual object; the user copying the virtual object; the user retaining the virtual object; me user viewing the virtual object; the user accessing the virtual object; the user	**Description: Column 3, Line 20**The step of updating virtual object behaviour data can include updating data that indirectly moderates a behaviour of the virtual object. The method can include incrementing, decrementing or re-setting a time to live of a virtual object in response to a user interaction with a virtual object. **Dolcera comments:**	**Description: Column 4, Line 21**Some aspects can be used to modulate interactions with other virtual objects or users. This data can be data relating to one or more of the following: Location and movement data - an important aspect of many virtual objects is their position and ability to move. Thus each virtual object will have at least one item of location data associated with it. Location data can include, but is not limited to: Current position. Movement status, e.g.	Relevant reference

		other in-car computing system. **Dolcera comments:** User creates a new virtual object from the user device which is a portable device.	accepting the virtual object; the user capturing the virtual object; the user moving the virtual object; the user modifying the virtual object; and the user releasing the virtual object. **Dolcera comments:**User who created the virtual object decides how the object interacts with other users for example accessing, modifying, using the object.	The user increment or decrements or re-sets a time to live for the virtual object.	whether the virtual objection is fixed, mobile, autonomous etc. Movement parameters, such as speed, direction, conditions upon movement. Target position, destination. Historical position, originating position. **Dolcera comments:**The user created virtual object can be made fixed or movable.	
2	US20120324018A1	**Description: Column 2, Line 35**In an embodiment, bubbles can be created dynamically by users via their location aware mobile devices. FIG. 4 illustrates an embodiment of a bubble creation dialog 400. The bubble creation dialog 400 provides a freeform text entry box 410 that allows users to enter a title for the bubble. **Description: Column 3, Line 46**The bubble creation dialog 400 additionally provides a text entry box 420 that allows users to enter a type for the bubble. The bubble type 420 generally reflects the purpose of the or the content of the bubble. **Dolcera Comments:** Bubbles are created by the users dynamically based on the location of the mobile devices.		**Description: Column 3, Line 50**Referring back to FIG. 4, the bubble creation dialog 400 additionally provides a controls for providing a start time 440 and an end time 450 for the bubble. In an embodiment, before the start time 450 messages and other types of content can only be posted to the bubble by the bubble creator and other users can sign into the bubble, but cannot post content or messages. **Dolcera comments:**Bubble creator can post the comments or messages in the bubble which is visible to the other users.	**Description: Column 3, Line 53**In an embodiment, the bubble creation dialog 400 additionally provides a control 470 to determine if a user must ask the bubble creator for permission to enter the bubble. The various embodiments of bubbles illustrated in FIGS. 1 and 7 are shown and described as being bounded located at a fixed location. In other embodiments, a bubble could be defined as having a dynamic location that varies over time (e.g. under advanced options) . For example, a bubble could be defined as having a location that tracks a moving person, vehicle or mobile device, such as, for example, passengers on a bus or subway train. **Dolcera comments:** Bubbles which are created by the user can be moved dynamically.	Related reference

Note: Please note that the highlighted sentences in the above table are representing relevant sentences for the elements of the invention.

- **Relevant reference**: In the light of the above relevant reference broad scope claims, covering Elements 1,2,3,4 of invention may not be possible. According to reference broad scope claims, covering virtual spheres or virtual objects at real world locations by users via their mobile devices, deciding how other users can interact with the virtual objects by the creator of the virtual objects, tying the virtual objects to a time window for future visibility, and the virtual objects being fixed to a location or moving based on the users specifications may not be possible. (Section - 102 of Novelty, similar invention claimed before effective date of filing.)
- **Related reference**: In the light of the above related reference broad scope claims, covering elements 1,3,4 may not be possible. This reference broad scope claims, covering virtual spheres or virtual objects at real world locations by users via their mobile devices, tying the virtual objects to a time window for future visibility and the virtual objects being fixed to a location or moving based on the users specifications may not be possible. (Section - 103 of Obviousness, some of the elements of invention claimed before effective date of filing.)

Analysis: Applicable non-patent literature found

S.No	Title	Element-1: Creating virtual spheres or virtual objects at real world locations by users via their mobile device	Element-2: The users who create the virtual objects decide how other users can interact with the virtual objects	Element-3: The virtual objects can be tied to a time window for future visibility	Element-4: The virtual objects are based on the user?s specifications ? the virtual objects can be fixed to a location or moving
1	Social App Igobubble Lets You Leave Virtual Bubbles At Real-World Locations	–	Location-aware free iPhone app Igobubble relaunched its latest version this week, with a face-lift of its user experience, an all-over redesign of its brand and graphics, and a new set of features to boot. The social discovery app allows users to meet new people nearby and share photos, videos and messages in virtual living bubbles at real world locations.	–	Igobubble is the only social discovery app that allows users to discover and share virtual content that can be anchored at real world locations, or can be carried on a smartphone. There are great dynamic new features such as a worldwide feed of activity, popularity lists, easy people discovery, and the ability to remotely drop bubbles at any location in the world.
2				–	–

	Can A Virtual Bubble Find A Real-World Soulmate	Location-aware free iPhone app igobubble lets users create and release virtual bubbles at real world locations.	Until now, users could release photos, videos and even messages in bottles that would float on digital waves. But from today users will also be able to harness the power of moving virtual objects to take a leap of fate and potentially find a soulmate, or at least have a laugh.		

*** Patentability search report can be provided in excel or word format**