

[0005] In order to solve existing technical problems in conventional search and LBS systems, an embodiment of the present disclosure includes a location-based search method, where a region identifier corresponding to location information of each target in a retrieval system is preset, and the method includes the following steps:

5 **[0006]** receiving, at a computing device, a request for content, said request comprising information about a current target; identifying, via the computing device, a first identifier associated with a first region based on said current target;

10 **[0007]** determining, via the computing device, a second region that is geographically proximate to the first region, said determination further comprising: determining a search range associated with said current target, analyzing a geographic area proximate the first region, identifying the second region based on the geographic area analysis, and identifying a second identifier associated with the second region;

15 **[0008]** identifying, via the computing device, a first target set of targets in the first and the second region based on said first identifier and said second identifier; and

20 **[0009]** searching, via the computing device, for a target within said target set, said search comprising calculating a distance between said current target and each of the targets in the first target set, and comparing said distance to a distance threshold, wherein said target is identified from said search upon said distance satisfying the distance threshold; and communicating, via the computing device, information associated with the searched target.

25 **[0010]** According to some embodiments of the present disclosure, a system is disclosed where a region identifier corresponding to location information of each target in a retrieval system is preset, and the system includes:

[0011] a processor;

[0012] a non-transitory computer-readable storage medium for tangibly storing thereon program logic for execution by the processor, the program logic comprising: logic executed by the processor for receiving, at a computing device, a request for content, said request comprising information about a current target; logic executed by the processor for identifying, via the computing device, a first identifier associated with a first region based on said information; logic executed by the processor for determining, via the computing device, a second region that is geographically proximate to the first region, said determination further comprising: determining a search range associated with said current target, analyzing a geographic area proximate the first region, identifying the second region based on the geographic area analysis, and identifying a second identifier associated with the second region;

[0013] logic executed by the processor for identifying, via the computing device, a first target set of targets in the first region and the second region based on said first identifier and said second identifier; and

[0014] logic executed by the processor for searching, via the computing device, for a target within said target set, said search comprising calculating a distance between said current target and each of targets in the first target set, and comparing said distance to a distance threshold, wherein said target is identified from said search upon said distance satisfying the distance threshold; and logic executed by the processor for communicating, via the computing device, information associated with the identified target.

[0015] In accordance with one or more embodiments, a system is provided that comprises one or more computing devices (also referred to as a “device”) configured to provide functionality in accordance with such embodiments. In accordance with one or more embodiments, functionality is embodied in steps of a method performed by at least one computing device. In accordance with one or more embodiments, program code (or program logic) is executed by a processor(s) of a computing device to implement functionality in accordance with one or

CLAIMS

What is claimed is:

- 5 1. A method comprising:
 - receiving, at a computing device, a request for content, said request comprising information about a current target;
 - identifying, via the computing device, a first identifier associated with a first region based on said current target;
 - 10 determining, via the computing device, a second region that is geographically proximate to the first region, said determination further comprising:
 - determining a search range associated with said current target,
 - analyzing a geographic area proximate the first region,
 - identifying the second region based on the geographic area analysis, and
 - 15 identifying a second identifier associated with the second region;
 - identifying, via the computing device, a first target set of targets in the first and the second region based on said first identifier and said second identifier;
 - searching, via the computing device, for a target within said target set, said search comprising calculating a distance between said current target and each of the targets in the first target set, and
 - 20 comparing said distance to a distance threshold, wherein said target is identified from said search upon said distance satisfying the distance threshold; and
 - communicating, via the computing device, information associated with the searched target.
2. The method of claim 1, wherein said searching further comprises:
 - 25 establishing an inverted index of identifiers from the target set; and
 - searching a database of identifiers associated with locations based on said inverted index, wherein said searched target is identified based on said inverted index search of said database.
3. The method of claim 1, wherein said searched target is associated with at least one of person, a
- 30 location or a real-world entity.
4. The method of claim 1, wherein the search range being covered or in accordance with the first region and the second region, each of the first region and the second region covers at least a part of the search range.

5. The method of claim 1, wherein said second region determination comprises:

determining a Geohash value of said first identifier; and

determining a second set of Geohash values based on said first Geohash value, wherein said second set of Geohash values correspond to said second region.

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6. The method of claim 5, wherein said first Geohash value of said first identifier satisfies a size threshold.

7. The method of claim 5, wherein said second set determination comprises implementing a Geohash coding scheme.

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8. The method of claim 1, wherein said second region comprises a plurality of locations, wherein each location is proximate to the first region.

9. The method of claim 1, wherein said second region comprises a second location that is proximate to the first region.

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10. The method of claim 1, wherein said second region is adjacent to said first region.

11. The method of claim 1, further comprising:

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determining said first identifier by analyzing coordinate information associated with said first region.

12. The method of claim 11, wherein said coordinate information is selected from a group consisting of: longitude and latitude coordinates, WiFi data and Bluetooth data.

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13. The method of claim 1, further comprising:

determining a third region that is geographically proximate to the first region, said determination further comprising identifying a third identifier associated with the third region;

identifying a second target set of targets in the first and the second region based on said first identifier, said second identifier and said third identifier;

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searching for said target within said second target set, said search comprising calculating distances between said current target and each of the targets in the first target set and between said current target in the second target set, and comparing the distances to the distance threshold; and

determining, based on said comparison, whether the distances for each comparison satisfies

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the distance threshold, wherein said communicated target information is associated with the at least one target that satisfies the distance threshold.

14. A non-transitory computer-readable storage medium tangibly encoded with computer-executable instructions, that when executed by the computing device, perform a method comprising:

receiving, at a computing device, a request for content, said request comprising current location information about a user;

identifying, via the computing device, a first identifier associated with a first region based on said information;

determining, via the computing device, a second region that is geographically proximate to the first region, said determination further comprising:

determining a search range associated with said current target,

analyzing a geographic area proximate the first region,

identifying the second region based on the geographic area analysis, and

identifying a second identifier associated with the second region;

identifying, via the computing device, a first target set of targets in the first and the second region based on said first identifier and said second identifier;

searching, via the computing device, for a target within said first target set, said search comprising calculating a distance between said user and each of the targets in the first target set, and comparing said distance to a distance threshold, wherein said target is identified from said search upon said distance satisfying the distance threshold; and

communicating, via the computing device, information associated with the searched target.

15. The non-transitory computer-readable storage medium of claim 14, wherein said searching further comprises:

establishing an inverted index of identifiers from the target set; and

searching a database of identifiers associated with locations based on said inverted index, wherein said searched target is identified based on said inverted index search of said database.

16. The non-transitory computer-readable storage medium of claim 14, wherein said second region determination comprises:

determining a search distance associated with said first region;

analyzing a geographic area proximate the first location according to the search distance for a location less than or equal to the search distance; and

identifying said second region based on said geographic area analysis.

17. The non-transitory computer-readable storage medium of claim 14, wherein said second region determination comprises:

5 determining a Geohash value of said first identifier; and

 determining a second set of Geohash values based on said first Geohash value, wherein said second set of Geohash values correspond to said second region,

 wherein said first Geohash value of said first identifier satisfies a size threshold, and wherein said second set determination comprises implementing a Geohash coding scheme.

10 18. The non-transitory computer-readable storage medium of claim 14, further comprising:

 determining a third region that is geographically proximate to the first region, said determination further comprising identifying a third identifier associated with the third region;

 identifying a second target set of targets upon which said search for said targets in the first, 15 second, and third region based on said first identifier, said second identifier and said third identifier;

 searching for said target within said second target set, said search comprising calculating a distance between said user and each of the targets in the first target set and between the user and each of the targets in the second target set, and comparing the distance to the distance threshold;

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 determining, based on said comparison, whether the distances for each comparison satisfies the distance threshold, wherein said communicated target information is associated with the at least one target that satisfies the distance threshold.

25 19. A system comprising:

 a processor;

 a non-transitory computer-readable storage medium for tangibly storing thereon program logic for execution by the processor, the program logic comprising:

 logic executed by the processor for receiving, at a computing device, a request for content, 30 said request comprising information about a current target;

 logic executed by the processor for identifying, via the computing device, a first identifier associated with a first region based on said information;

 logic executed by the processor for determining, via the computing device, a second region that is geographically proximate to the first region, said determination further comprising:

35 determining a search range associated with said current target,

analyzing a geographic area proximate the first region,
identifying the second region based on the geographic area analysis, and
identifying a second identifier associated with the second region;

5 logic executed by the processor for identifying, via the computing device, a first target set of
targets in the first region and the second region based on said first identifier and said second
identifier;

logic executed by the processor for searching, via the computing device, for a target within
said target set, said search comprising calculating a distance between said current target and each
of targets in the first target set, and comparing said distance to a distance threshold, wherein said
10 target is identified from said search upon said distance satisfying the distance threshold; and

logic executed by the processor for communicating, via the computing device, information
associated with the identified target.

20. The system of claim 19, further comprising:

15 logic executed by the processor for determining a third region that is geographically proximate
to the first region, said determination further comprising identifying a third identifier associated
with the third region;

logic executed by the processor for identifying a second target set of targets based on said first
identifier, said second identifier and said third identifier;

20 logic executed by the processor for searching for said target within said second target set, said
search comprising calculating a distance between said current target and each of targets in the first
target set and between the current target and each of targets in the second target set, and comparing
the distance to the distance threshold; and

logic executed by the processor for determining, based on said comparison, whether the
25 distances for each comparison satisfies the distance threshold, wherein said communicated target
information is associated with the at least one target that satisfies the distance threshold.