

Claims

1. A computer-implemented system for pre-assigned workers, the system comprising:
 - a memory storing instructions; and
 - at least one processor configured to execute the instructions to:
 - retrieve, from a database, a plurality of delivery routes and a plurality of delivery sub-routes, wherein the delivery sub-routes are part of the delivery routes;
 - calculate, based on the retrieval, a number of packages allocated to the delivery routes and the delivery sub-routes;
 - receive data comprising groups of pre-assigned workers available for deliveries, the workers being classified into a plurality of categories;
 - compare, based on the received groups, the pre-assigned workers against the delivery routes and the delivery sub-routes;
 - assign, based on the comparison, the packages, the delivery routes, and the delivery sub-routes to the pre-assigned workers;
 - generate a historical cross-time measurement and cross-time completion value;
 - generate a plurality of candidate routes associated with the pre-assigned workers; and
 - calibrate, based on the assignment, the historical cross-time measurement, cross-time completion value, and the generated candidate routes, the delivery sub-routes.
2. The computer-implemented system for pre-assigned workers of claim 1, wherein the at least one processor is further configured to:
 - determine the delivery routes and the delivery sub-routes based on historical data and optimized map data.
3. The computer-implemented system for pre-assigned workers of claim 1, wherein the at least one processor is further configured to:

receive geographical data from a plurality of regions and a plurality of sub-regions, wherein the geographical data includes at least one of landscape data, business data, residential data, parking data, and building data;

determine, based on the geographical data, an expected delivery efficiency, the expected delivery efficiency being measured by percentiles of addresses visited by the workers per hour (APH); and

calculate, based on historical data, the APH for selected individual regions and sub-regions.

4. The computer-implemented system for pre-assigned workers of claim 1, wherein the at least one processor is further configured to:
 - calculate an expected time for the workers to travel between first and second regions, wherein the expected time includes a cross-region time and a sub-region time based on a median time gap or an average time; and
 - determine, based on a linear regression and the cross-region time, a driving time between the first and the second regions.
5. The computer-implemented system for pre-assigned workers of claim 1, wherein
 - the received data includes a package distribution and an attendance value.
6. The computer-implemented system for pre-assigned workers of claim 1, wherein the at least one processor is further configured to:
 - determine delivery regions and delivery sub-regions associated with the delivery routes and the delivery sub-routes; and
 - combine the delivery regions and the delivery sub-regions into new regions for delivery.

7. The computer-implemented system for pre-assigned workers of claim 1, wherein the at least one processor is further configured to:
 - determine candidate regions and candidate delivery sub-regions associated with the candidate routes;
 - combine the candidate regions and the candidate delivery sub-regions into new regions for delivery; and
 - determine a combination of the candidate delivery regions and the candidate delivery sub-regions based on a calculated expected delivery efficiency value and a calculated cross-region time.
8. The computer-implemented system for pre-assigned workers of claim 7, wherein the at least one processor is further configured to:
 - redistribute at least one of candidate delivery regions and candidate delivery sub-regions based on the calculated expected delivery efficiency value and the calculated cross-region time.
9. The computer-implemented system for pre-assigned workers of claim 1, wherein the at least one processor is further configured to:
 - allocate the workers into at least one of the plurality of categories according to classification characteristics; and
 - weigh, based on the classification characteristics, the workers according to efficiency characteristics.
10. The computer-implemented system for pre-assigned workers of claim 1, wherein the at least one processor is further configured to:
 - receive, based on the received data, the number and the type of the workers at a graphical user interface (GUI) from at least one of a web browser or a mobile device.
11. The computer-implemented system for pre-assigned workers of claim 1, wherein the at least one processor is further configured to:
 - calculate an average deviation value of the groups from an average value of packages per worker delivery.

12. The computer-implemented system for pre-assigned workers of claim 9, wherein the classification characteristics includes at least one of experience or efficiency.
13. A computer-implemented method for pre-assigned workers, the method comprising:
 - retrieving, from a database, a plurality of delivery routes and a plurality of delivery sub-routes, wherein the delivery sub-routes are part of the delivery routes;
 - calculating, based on the retrieval, a number of packages allocated to the delivery routes and the delivery sub-routes;
 - receiving data comprising groups of pre-assigned workers available for deliveries, the workers being classified into a plurality of categories;
 - comparing, based on the received groups, the pre-assigned workers against the delivery routes and the delivery sub-routes;
 - assigning, based on the comparison, the packages, the delivery routes, and the delivery sub-routes to the pre-assigned workers;
 - generating a historical cross-time measurement and cross-time completion value;
 - generating a plurality of candidate routes associated with the pre-assigned workers; and
 - calibrating, based on the assignment, the historical cross-time measurement, cross-time completion value, and the generated candidate routes, the delivery sub-routes.
14. The computer-implemented method of claim 13, the method further comprising:
 - determining the delivery routes and the delivery sub-routes based on historical data and optimized map data.

15. The computer-implemented method of claim 13, the method further comprising:
 - receiving geographical data from a plurality of regions and a plurality of sub-regions, wherein the geographical data includes at least one of landscape data, business data, residential data, parking data, and building data;
 - determining, based on the geographical data, an expected delivery efficiency, the expected delivery efficiency being measured by percentiles of addresses visited by the workers per hour (APH); and
 - calculating, based on historical data, the APH for selected individual regions and sub-regions.
16. The computer-implemented method of claim 13, the method further comprising:
 - calculating an expected time for the workers to travel between first and second regions, wherein the expected time includes a cross-region time and a sub-region time based on a median time gap or an average time; and
 - determining, based on a linear regression and the cross-region time, a driving time between the first and the second regions.
17. The computer-implemented method of claim 13, wherein the received data includes a package distribution and an attendance value.
18. The computer-implemented method of claim 13, the method further comprising:
 - determining delivery regions and delivery sub-regions associated with the delivery routes and the delivery sub-routes; and
 - combining the delivery regions and the delivery sub-regions into new regions for delivery.
19. The computer-implemented method of claim 13, the method comprising:

determining candidate regions and candidate delivery sub-regions associated with the candidate routes;
combine the candidate regions and the candidate delivery sub-regions into new regions for delivery; and
determine a combination of the candidate delivery regions and the candidate delivery sub-regions based on a calculated expected delivery efficiency value and a calculated cross-region time.