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(54) Título: SISTEMA E MÉTODO PARA TRANSFERIR REGULAÇÃO DE SERVIÇO DE RESÍDUO E DADOS DE CONFORMIDADE DE TRANSPORTADOR

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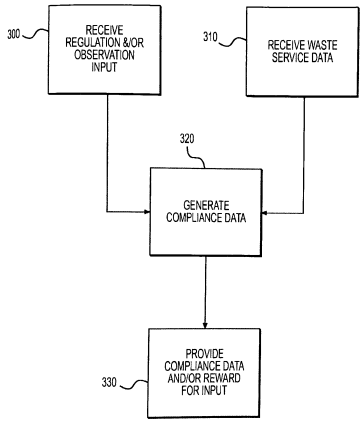
(57) Resumo: SISTEMA E MÉTODO PARA TRANSFERIR REGULAÇÃO DE SERVIÇO DE RESÍDUO E DADOS DE CONFORMIDADE DE TRANSPORTADOR. Um sistema é divulgado para gerenciar serviços de resíduos. O sistema pode ter uma memória com instruções executáveis em computador armazenada nele, e um processador. O processador pode ser configurado para executar as instruções para receber, via um primeiro portal, entrada referente a uma regulação para um veículo de serviço. O processador pode também ser configurado para executar as instruções armazenadas para receber, via um segundo portal, dados de serviço de resíduos associados com operações monitoradas do veículo de serviço. O processador pode ser ainda configurado para executar as instruções armazenadas para fazer uma determinação baseada nos dados de serviço de resíduos referentes ao veículo de serviço sendo compatível com a regulação de serviço de resíduo, e para mostrar dados de conformidade no primeiro portal baseados na determinação e em retorno à entrada.



UNITED STATES NON-PROVISIONAL PATENT APPLICATION

FOR

SYSTEM AND METHOD FOR EXCHANGING WASTE SERVICE REGULATION AND HAULER COMPLIANCE DATA

BY

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Description

SYSTEM FOR OPEN EXCHANGE OF WASTE SERVICE REGULATION/COMPLIANCE DATA

Technical Field

[0001] The present disclosure relates generally to a data exchange system and, more particularly, to a data exchange system for waste service regulation/compliance data.

Background

[0002] The performance of waste services may be regulated by municipal, county, regional, state, and federal governments. For example, the transportation, treatment, storage, and/or disposal of many different types of waste may be regulated. In some instances, the regulations imposed by larger governmental bodies may be readily accessible (e.g., via postings on the internet). In other instances, however, the regulations may be more difficult to access (e.g., only by way of paper copies kept at local municipal buildings). The regulations may be similar and/or overlap in some areas, but can also be different and change frequently and/or without notice. Accordingly, it can be difficult for waste service providers to remain knowledgeable and compliant with all of the different regulations. This can be particularly true when the service providers serve a wide area of intersecting regulatory boundaries.

[0003] Historically, the service providers remained aware of the ever-changing waste service regulations in one of two ways. First, the providers became aware of a particular regulation when a service vehicle was caught violating the regulation. The provider would be penalized for the violation, but then make changes to accommodate the corresponding regulation in future operations. Obvious drawbacks of this approach include negative impacts on the environment, fines, loss of rights, negative public opinion, loss of customers, etc. Second, the provider could hire professionals whose job it is to actively search out changes to the various regulations and keep the provider updated. This approach, however, can be costly, time consuming, and prone to error.

[0004] The disclosed system is directed to overcoming one or more of the problems set forth above and/or other problems of the prior art.

ary

In one aspect, the present disclosure is directed to a system for managing waste service
aste management system may include a memory with computer-executable instructions st
, and a processor. The processor may be configured to execute the instructions to receive
portal, input regarding a regulation for a service vehicle. The processor may also be
ured to execute the stored instructions to receive, via a second portal, waste service data
ted with monitored operations of the service vehicle. The processor may be further
ured to execute the stored instructions to make a determination based on the waste service
ng the service vehicle being compliant with the waste service regulation, and to show
ance data on the first portal based on the determination and in return for the input.

In another aspect, the present disclosure is directed to method for managing waste servi
ethod may include receiving, via a first portal, input regarding a regulation for a service
. The method may also include receiving, via a second portal, waste service data associat
onitored operations of the service vehicle. The method may further include making a
ination based on the waste service data regarding the service vehicle being compliant with
ervice regulation, and showing compliance data on the first portal based on the determina
return for the input.

In yet another aspect, the present disclosure is directed to a non-transitory computer
e medium containing computer-executable programmable instructions for performing a
of waste service management. The method may include receiving, via a first portal, inpu
ng a regulation for a service vehicle. The method may also include receiving, via a secon
waste service data associated with monitored operations of the service vehicle. The meth
rther include making a determination based on the waste service data regarding the servic
being compliant with the waste service regulation, and showing compliance data on the f
based on the determination and in return for the input.

escription of the Drawings

Fig. 1 is a perspective illustration of an exemplary disclosed waste service environment

Fig. 3 is a flowchart depicting an exemplary disclosed method that may be performed b
tem of Fig. 2.

d Description

Fig. 1 illustrates an exemplary waste service environment ("environment") 10, at whicl
more vehicles 12 are providing service for any number of different customers. Environm
d stretch over a wide area and include, for example, a retail store, a factory, a governmen
g, a residential address, and/or another location having one or more receptacles 14 that
the services of vehicles 12. The services may include, for example, the removal of waste
ls from inside of receptacle(s) 14; the transportation of the waste materials and/or recepta
landfill, recycling center, or sorting facility; containment and/or treatment of hazardous v
ls; waste cleanup; etc.

Vehicles 12 may embody haul trucks (and/or trailers that are attachable to the haul truc
include or otherwise carry a storage compartment for holding waste materials. As is know
the storage compartment may have a rear, side, and/or top hatch for receiving materials f
cles 14, and the waste materials may be manually, automatically, or semi-automatically
into the storage compartment of a particular vehicle 12 via the corresponding hatch. For
le, management personnel may be able to manually lift and tilt receptacles 14 into the stor
rtment of a rear-hatch vehicle 12, thereby emptying receptacle 14 of the associated waste.
r example, vehicles 12 may include mechanical, electrical, and/or hydraulic systems
ured to automatically grasp, lift, tilt, and thereby empty receptacles 14 into vehicle 12 via
ch. In yet another example, some tasks (e.g., grasping) may be completed manually and
e.g., lifting and tilting) may be completed with the assistance of the mechanical, electrical
hydraulic systems via a side-hatch of vehicle 12. In a final example, receptacle 14 may
be loaded (e.g., manually, automatically, or semi-automatically) together with the waste
ts onto vehicle 12 and transported away for emptying at another location.

As each vehicle 12 moves about environment 10, a satellite 16 or other tracking device
mmunicate with an onboard controller 30 (shown only in Fig. 2) to monitor the movemen
cle 12 and the associated changes made to environment 10 (e.g., pickup, transporting,

ervice facility), which may then manage service activities of each vehicle 12 based on the
nents and changes.

Onboard controller 30 may include means for monitoring, recording, storing, indexing
sing, communicating and/or controlling other onboard and/or offboard devices. These me
clude, for example, a memory, one or more data storage devices, a central processing uni
ner components that may be used to run the disclosed application. Furthermore, although
of the present disclosure may be described generally as being stored in memory, one ski
rt will appreciate that these aspects can be stored on or read from different types of comp
m products or computer-readable media such as computer chips and secondary storage
s, including hard disks, floppy disks, optical media, CD-ROM, or other forms of RAM or

Onboard controller 30 may be configured to track, assist, and/or control movements of
ted vehicle(s) 12. As shown in Fig. 2, in addition to onboard controller 30, each vehicle
additionally include a locating device 38, and at least one of a manual input device 40 and
42 mounted or otherwise located onboard each vehicle 12. In some embodiments, vehicl
pped with both manual input device 40 and one or more sensors 42. Onboard controller 3
in communication with each of these other components and/or with CPU 32 at the back
e.g., via a communication device 44), and configured to determine, based on signals from
omponents and based on other known information stored in memory, operational
eristics of each vehicle 12 and/or operational characteristics of receptacles 14 (and/or the
nside of receptacles 14) being moved by and/or in a vicinity of each vehicle 12. The
onal characteristics may include among other things, a vehicle identification, a location, a
, a speed, a waste material type and/or amount, an origination, a destination, vehicle
ons, and other service-related data.

Locating device 38 may be configured to generate signals indicative of a geographical
n and/or orientation of vehicle 12 relative to a local reference point, a coordinate system
ted with environment 10, a coordinate system associated with Earth, or any other type of
coordinate system. For example, locating device 38 may embody an electronic receiver

ceive and analyze high-frequency, low-power radio or laser signals from multiple locatio
late a relative 3-D geographical position and orientation. In some embodiments, locating
38 may also be configured to determine a location and/or orientation of a particular part
12, for example of a receptacle lift. Based on the signals generated by locating device 3
sed on known kinematics of vehicle 12, onboard controller 30 may be able to determine i
ne the position, heading, travel speed, acceleration, and orientation of vehicle 12 and the
nism. This information may then be used by onboard controller 30 and/or CPU 32 to upd
rational characteristics of vehicles 12 and/or receptacles 14.

Input device 40 may provide a way for an operator of vehicle 12 to input information
ng observances made while traveling around environment 10. For example, the operator
to enter a type and/or condition of waste observed at a particular location, an amount of
n or around receptacle 14, a fill status of a particular receptacle 14, a condition of recepta
cation of receptacle 14, and or other information about receptacle 14 and the waste engag
ded into, or otherwise processed by vehicle 12. The information may be input in any num
s, for example via a cab-mounted touch screen interface, via one or more buttons, via a
rd, via speech recognition, via a smartphone carried by the operator, or in another manne
in the art. In some embodiments, in addition to receiving manual input from an operator,
evice 40 may also be capable of displaying information, for example an electronic map o
ment 10, a schedule, directions, instructions from the back office, payload information,
onding regulations, etc.

Sensors 42 may be configured to monitor parameters associated with the waste materia
into vehicle 12 and/or the corresponding receptacle(s) 14 being moved by vehicle 12, and
e signals indicative thereof. Each of these sensors 42 may be any type of device known i
and located anywhere on or in vehicle 12. In one example, sensor 42 may embody any o
of a load cell, a force gauge, a pressure sensor, or another type of load detector associate
mpacting, containing, dumping, lifting, supporting or otherwise moving the waste receiv
ceptacle 14. In this example, the signals generated by sensor(s) 42 may correspond with
d/or a payload weight of vehicle 12 and/or receptacles 14.

12, to drive hydraulics of lift actuators, to move an in-bed compactor, or to shut an ed door. Other types of sensors 42 (e.g., cameras, spectrometers, IR sensors, RADAR , LIDAR sensors, etc.) may also be utilized to determine the operational characteristics o vehicle 12, the waste material inside receptacles 14, and/or of receptacles 14 themselves. ner examples, sensor 42 could be a vibration sensor (e.g., a microphone), an accelerome ner similar type of sensor configured to detect engagement conditions, motions, and/or cy tions during lifting, dumping, shaking and/or travel operations. Other types of sensors 42 ernatively or additionally be utilized. Signals generated by these sensors 42 may be nicated to onboard controller 30 for further processing.

Onboard controller 30 may be configured to manage communications between other l components and CPU 32 located at the back office. For example, onboard controller 30 eive signals from locating device 38, input device(s) 40, and sensors 42, and correlate th filter the signals, buffer the signals, record the signals, or otherwise condition the signals directing the signals offboard via communication device 44.

Communication device 44 may be configured to facilitate communication between onb er 30 and CPU 32. Communication device 44 may include hardware and/or software tha he sending and/or receiving of data messages through a communications link. The nications link may include satellite, cellular, infrared, radio, and any other type of wireles nications. Alternatively, the communications link may include electrical, optical, or any pe of wired communications, if desired. In one embodiment, onboard controller 30 may , and CPU 32 may communicate directly with locating device 38, input device(s) 40, and s) 42 via communication device 44, if desired. Other means of communication may also e.

As shown in Fig. 2, onboard controller 30 (along with the other connected onboard ents) and CPU 32 may each form a portion of a waste management system ("system") 4 red to generate, maintain, analyze, compare, send, solicit, confirm, display, receive and/o nformation associated with the disclosed concepts. System 46 may include, for example access memory (RAM) 48, a read-only memory (ROM) 50, a storage 52, at least one

service portal 66). As will be explained in more detail below, CPU 32 may be configure
data from different users via portals 60-66, and to compare, process, record, and share th
h the same and/or with other users via the same or different portals 60-66. It is contemp
tem 46 may include additional, fewer, and/or different components than those listed abo
lerstood that the type and number of listed devices are exemplary only and not intended t
.

CPU 32 may include an arrangement of electronic circuitry configured to perform
tic, logic, input/output, and control operations during sequential execution of pre-
mmed instructions. The instructions may be loaded from ROM 50 into RAM 48 for execu
32. It should be noted that, although CPU 32 is shown and described as a single "unit",
plated that the functions of CPU 32 could alternatively be completed by any number of c
or remotely distributed and cooperating processing units, as desired. Numerous
rcially available microprocessors may be configured to perform the functions of CPU 32.
the microprocessors may be general-purpose processors or specially constructed for use
enting the disclosed concepts.

Storage 52 may embody any appropriate type of mass storage provided to hold informa
U 32 may need in order to perform the disclosed processes. For example, storage 52 may
one or more hard disk devices, optical disk devices, or other storage devices that provide
nt storage space.

Databases 54 and/or 56 may contain any information relating to particular waste servic
and regulatory records under analysis. The information stored within databases 54 and/o
me from multiple different sources and be provided at any time and frequency. For exam
rmation could be manually entered by service provider employees, manually entered by
nental agency employees, manually entered by the general public, and/or automatically
by onboard controller 30. The information may be entered live (e.g., as the information
d and/or observed by a vehicle operator and/or the public), entered based on a predeterm
e (e.g., based on regular downloads of regulation and/or waste service data), continuousl
d (e.g., via a live link to regulation information), intermittently pulled from "the cloud" (

ory information, databases 54 and/or 56 may also include analysis tools for analyzing the
tion stored therein. CPU 32 may use databases 54 and/or 56 to make comparisons and/o
nations regarding relationships and/or trends relating to particular customers, service veh
ice vehicle drivers, locations, regulations, uses of system 46, and other such pieces of
tion. CPU 32 may pull information from databases 54 and/or 56, manipulate the
tion, and analyze the information. CPU 32 may also update the information, store new
tion, and store analysis results within databases 54 and/or 56, as desired.

CPU 32 may communicate with a user of system 46 (e.g., a user accessing any one of
60-66) via network interface 58. Network interface 58 may include, alone or in any suita
ation, a telephone-based network (such as a PBX or POTS), a local area network (LAN),
ea network (WAN), a dedicated intranet, and/or the Internet. Further, the network
ture may include any suitable combination of wired and/or wireless components. For
e, the communication links may include non-proprietary links and protocols, or proprietar
d protocols based on known industry standards, such as J1939, RS-234, RP1210, RS-422
, MODBUS, CAN, SAEJ1587, Bluetooth, the Internet, an intranet, 802.11 (b, g, n, ac, or
ther communication links and/or protocols known in the art.

Each of portals 60-66 can include one or more of a router, an Ethernet bridge, a modem
wired or wireless modem), or any other conventional computing components known in th
shown) such as a processor, input/output (I/O) ports, a storage, and a memory. The
or of each portal 60-66 can include one or more processing devices, such as microprocess
mbedded controllers. The storage can include volatile or non-volatile, magnetic,
ductor, tape, optical, removable, non-removable, or other type of computer-readable
or computer-readable storage device. The storage can be configured to store software
s (e.g., apps) downloaded from CPU 32 via network interface 58 and/or other informatio
be used to implement one or more of the disclosed processes. The memory can include
storage devices configured to store the downloaded information. Each of portals 60-66
o communicate with CPU 32, with databases 54 and/or 56, and/or directly with another
0-66 via network interface 58.

odiment, an exemplary portal is a computer (e.g., a laptop or desktop computer) having a
and a keyboard/mouse. In another embodiment, an exemplary portal is a handheld mobil
uch as a smart phone or a tablet having a touchscreen display and/or a keyboard. Other
portals may also be utilized. The GUI of portals 60-66 may allow the user to receive (e.g
and/or audibly) information from system 46 via network interface 58, to upload informat
n 46, and/or to correspond with other users of system 46.

Portal 60 may be dedicated for use by an employee and/or service provider representativ
n 46 (e.g., a regulatory controller, an account representative, a service manager, etc.). It
lated that any number of portals 60 may be simultaneously connected to network interfac
e by any number of different users. Each such portal 60 may allow the representative to
em 46 (e.g., via a web-based program, an internet site, or a mobile app) and to monitor a
r service event (e.g., a historic event or a live event, such as waste pickup, transportation,
isposal), to view a service-related regulation (e.g., use of a particular roadway, maximum
vehicle weight, hazardous handling requirements, cleanliness, noise ordinances, allowed
g hours, etc.), to compare aspects of particular service events to aspects of particular
ns, to view public-provided observations of service events (e.g., observations provided v
ortal 62) and/or regulations (e.g., regulations provided via government agency portal 64),
he public for their observations, to alert operators of compliance issues (e.g., to provide a
ion of a regulation change via service portal 66), to reward and/or penalize operators for
nce-related activities (e.g., regulation violations), to share (e.g., publish, post, email, send
e, etc.) compliance data with the public and/or the government agencies, and/or for other
urposes.

Public portal 62 may be intended for use by a general member of the public (e.g., a mem
blic living in an area serviced and/or traversed by service vehicle 12). It is contemplated
number of portals 62 may be simultaneously connected to network interface 58 for use b
ber of different users. Each such portal 60 may allow the user to access system 46 (e.g.,
ased program, an internet site, or a mobile app) and to publish information relating to
operational characteristics of service vehicles 12, regulations pertaining to operation of

tion may also be input by the general public, if desired.

Portal 62 may also be used to inform and/or selectively reward the public. For exampl nce information regarding how well particular service vehicles 12 and/or service vehicle rs comply with existing regulations may be provided to the general public via portal 62. , in some instances, members of the public may be selectively rewarded for interacting v 46 (e.g., for providing input such as observed operations, regulations, and compliance on). The rewards may include, for example, credit towards future waste services.

Government agency portal 64 may be dedicated for use by a government agency ntative (e.g., a representative responsible for waste service regulations). It is contemplate number of portals 64 may be simultaneously connected to network interface 58 for use b nber of different representatives associated with the same or different government agency a federal, state, or local agency). Each such portal 64 may allow the representative to lo tem 46 (e.g., via a web-based program, an internet site, or a mobile app) and to view ons existing in database 56, to update the regulations, to remove regulations, and to respo inquiries regarding past, current, and/or proposed regulations.

Portal 64 may also be used to inform and/or selectively incentivize the government s. For example, compliance information regarding how well particular service vehicles 1 ervice vehicle operators comply with existing regulations may be provided to the onding government agency via portal 64, in return for keeping system 46 updated with th gulations.

Service portal 66 may be dedicated to the input of information generated onboard vehic r for the general use by vehicle operators. In some examples, the information is ically provided by way of locating device 38 and sensors 42. In other examples, the ion is manually provided by way of input device(s) 40. The information may include, fo , the location of each vehicle 12, a travel path, a schedule of stops, a status of a particula vent (e.g., if the service has been started, is ongoing, has been completed, or is atic), an origination of waste material being transported by a particular service vehicle 1 the service vehicle, a destination, and other information. It is contemplated that the

portal), if desired.

Portal 66 may also be used to inform, alert, reward, and/or penalize particular service operators. For example, compliance information regarding how well particular service 12 and/or service vehicle operators comply with existing regulations may be provided vi , along with corresponding rewards and/or penalties (e.g., financial, opportunity, and/or rewards and penalties).

Based on the information received from portals 60-66, CPU 32 can be configured to nstructions stored on computer readable medium to perform methods of waste service ment at environment 10. For example, CPU 32 may be configured to monitor service as i rformed, to compare the service to applicable regulations, and to provide feedback (e.g., ce provider, the operators, the public, the government agencies, etc.) based on the monito he regulations, and the comparisons. This process is illustrated in Fig. 3, and will be d in more detail in the following section to further illustrate the disclosed concepts.

l Applicability

The disclosed system may be applicable to the waste service industry, where service 12 operate across overlapping regulatory boundaries. The disclosed system may conside nal characteristics of individual service vehicles, regulator information from different , and public opinion, and produce compliance data associated with the information. The nce data may be provided to interested agencies in return for cooperatively providing the ion. In addition, some of the entities may be selectively rewarded for their cooperation eir part in making operation of service vehicles 12 compliant with the applicable ns. Operation of system 46 will now be described with reference to Fig. 3.

As shown in Fig. 3, operation of system 46 may begin with the receipt of regulation and ion input by CPU 32 (Step 300). As described above, this input may include regulations g to waste service activities for a particular municipality, area, region, county, state, and/ hat are received via portal 64. For example, a local regulatory controller for a small tow into system 46 via portal 64 and report a new or changing regulation requiring a heavily ervice vehicle 12 to follow a detour route around the town during spring thaw that occurs

updates regarding regulation changes associated with the transportation of certain types o
n addition, the input received by CPU 32 at step 300 may include observations made by t
public via portal 62, such as observations regarding regulations, regarding operation of
ehicles 12, and/or regarding compliance of service vehicles 12 with particular regulation
nple, the public may provide the local regulation update (e.g., when the small town does
a local regulator controller) and/or report on a particular service vehicle 12 failing to follo
ur route. As also described above, the input received at step 300 may be received at any
ermittently, periodically, and/or continuously. The input received at step 300 may be sto
nple, within regulations database 56.

Simultaneous with the receipt of input from governmental agencies and/or the public, w
lata may be received by CPU 32 (Step 310). As described above, this data may be provid
l 66 and include, for example, data monitored from onboard service vehicle 12. This dat
clude, among other things, a vehicle identification, a waste origination, a pickup schedule
tation route, tracked location information, a waste destination, a type of waste, an amount
ume, weight, etc.) of waste, etc. The waste service data may be provided by locating dev
e operator of service vehicle 12 (e.g., via input device 40), and/or by sensor(s) 42. The
rvice data may be transmitted live by onboard controller 30 to CPU 32 (e.g., via
ication device 44) and/or downloaded at any appropriate time. The waste service data
at step 310 may be stored, for example, within operations database 54.

CPU 32 may then be configured to compare the waste service data stored in operations
d 54 with the regulations and/or observation input stored in regulations database 56 to
e a compliance of service activities with the regulations (Step 320). In particular, CPU 3
onfigured to determine if each service vehicle 12 and/or each operator of each service
2 is compliant with the applicable regulations. For example, based on the location of
2 provided by locating device 38, CPU 32 may determine if vehicle 12 is following an
route or violating a regulation associated with a particular roadway. Similarly, based on
f vehicle 12 provided by one or more sensor(s) 42, CPU 32 may determine if vehicle 12 i
loaded for local bridge limits. Finally, based on a type of waste material loaded into

ons have been followed. In some embodiments, parameters associated with the compliand
y also be generated by CPU 32. For example, CPU 32 may be configured to calculate an
(e.g., a percent) of an activity that is compliant; a number of compliant activities; a ratio o
nt-to-noncompliant activities; a compliance ranking of service vehicles 12 and/or of
s; etc.

In return for the input received at step 300 (and as an incentive for future input), CPU 32
configured to voluntarily post the compliance data and/or provide other rewards (Step 330
ular, although the government agencies may not require a report of waste service
nce, CPU 32 may selectively provide some or all of the compliance data (e.g., the
ers associated with the compliance data) to government agency portal 64 and/or public po
s information may not necessarily identify particular non-compliant service vehicles 12
perators, but still allow the government agencies to better focus their regulatory efforts ar
eas of lower compliance. In addition, the compliance data may provide a sense of securit
neral public that the activities are being performed in a responsible manner. In some
s, the participating members of the general public may additionally be financially rewarde
mple, the participating members may be remunerated with credit for future waste services
r their input.

In some instances, the compliance data may additionally be provided to the service vehi
s (e.g., via portal 66). The compliance data may be provided in the form of an alert
g that a particular violation may have occurred, a reward for being compliant, a ranking o
nt operators, and/or an elevated status as a preferred operator. The compliance data and/o
may be triggered by and/or incorporate data generated by locating device 38, sensor(s) 42
nput device(s) 40. For example, route information, boundary information, detour
ion, weight information, disposal information, noise information, and other similar
ion may be generated by these onboard devices and used to trigger the alert and/or displa
erator alone or in conjunction with the corresponding regulations. For instance, a current
neasured by sensor(s) 42 and a weight limit may be displayed together on input device 40
th an instruction to reduce payload in order to be compliant with the corresponding

The disclosed system may help waste service providers to remain updated on and
nt with ever-changing service regulations. In particular, the regulatory government agen
he general public may be incentivized by the disclosed system to regularly provide the
This strategy may reduce a burden on the waste service providers, while also helping to
a compliance with the regulations.

It will be apparent to those skilled in the art that various modifications and variations ca
to the disclosed system. Other embodiments will be apparent to those skilled in the art
nsideration of the specification and practice of the disclosed system. It is intended that th
ation and examples be considered as exemplary only, with a true scope being indicated by
wing claims and their equivalents.

Claims

What is claimed is:

1. A system for managing waste services, comprising:

a memory having computer-executable instructions stored thereon; and

a processor configured to execute the instructions to:

receive, via a first portal, input regarding a regulation for a service vehicle;

receive, via a second portal, waste service data associated with monitored operations of the service vehicle;

make a determination based on the waste service data regarding the service vehicle being compliant with the regulation; and

show compliance data on the first portal based on the determination and in return for the input.

2. The system of claim 1, wherein:

the first portal is a government agency portal; and

the second portal is a service provider portal.

3. The system of claim 1, wherein:

the first portal is a public portal; and

the second portal is a service provider portal.

4. The system of claim 3, wherein the processor is further configured to provide credit for future waste services to a user of the public portal in return for the input.

5. The system of claim 3, wherein the processor is further configured to receive, via the first portal, input regarding observed compliance of the service vehicle with the regulation.

6. The system of claim 1, wherein the waste service data includes onboard data collected from the service vehicle during operation.

7. The system of claim 6, wherein the onboard data includes at least one of a service vehicle identification, a service vehicle weight, a waste type, a waste origin, a waste destination, vehicle emissions, and a service route.

8. The system of claim 6, further including a plurality of sensors configured to collect the onboard data.

9. A method for managing waste services, the method comprising:

receiving, via a first portal, input regarding a regulation for a service vehicle;

receiving, via a second portal, waste service data associated with monitored operations of the service vehicle;

making a determination based on the waste service data regarding the service vehicle being compliant with the regulation; and

showing compliance data on the first portal based on the determination and in return for the input.

10. The method of claim 9, wherein:

the first portal is a government agency portal; and

the second portal is a service provider portal.

11. The method of claim 9, wherein:

the first portal is a public portal; and

the second portal is a service provider portal.

12. The method of claim 11, further including providing credit for future waste services to a user of the public portal in return for the input.

13. The method of claim 11, further including receiving, via the first portal, input regarding observed compliance of the service vehicle with the regulation.

14. The method of claim 9, further including collecting the waste service data from onboard the service vehicle during operation.

15. The method of claim 14, wherein the waste service data includes at least one of a service vehicle identification, a service vehicle weight, a waste type, a waste origin, a waste destination, and a service route.

16. A non-transitory computer readable medium containing computer-executable programming instructions for performing a method of waste service management, the method comprising:

receiving, via a first portal, input regarding a regulation for a service vehicle;

receiving, via a second portal, waste service data associated with monitored operations of the service vehicle;

making a determination based on the waste service data regarding the service vehicle being compliant with the regulation; and

showing compliance data on the first portal based on the determination and in return for the input.

17. The non-transitory computer readable medium of claim 16, wherein:

the first portal is a government agency portal; and

the second portal is a service provider portal.

18. The non-transitory computer readable medium of claim 16, wherein:

the first portal is a public portal; and

the second portal is a service provider portal.

19. The non-transitory computer readable medium of claim 18, wherein the method further includes receiving, via the first portal, input regarding observed compliance of the service vehicle with the regulation.

20. The non-transitory computer readable medium of claim 16, wherein:

the method further includes collecting the waste service data from onboard the service vehicle during operation; and

the waste service data includes at least one of a service vehicle identification, a service vehicle weight, a waste type, a waste origin, a waste destination, and a service route.

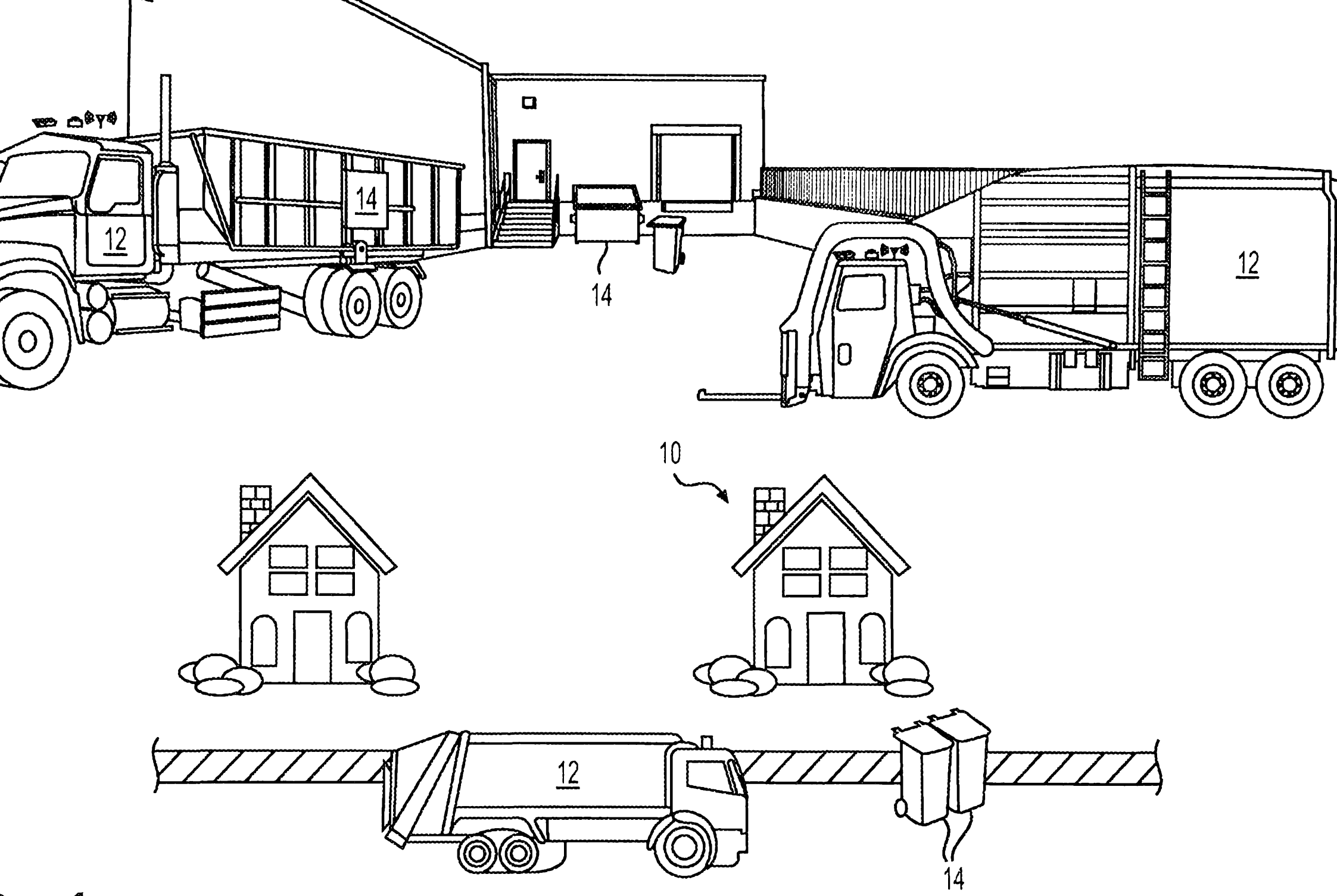


Fig. 1

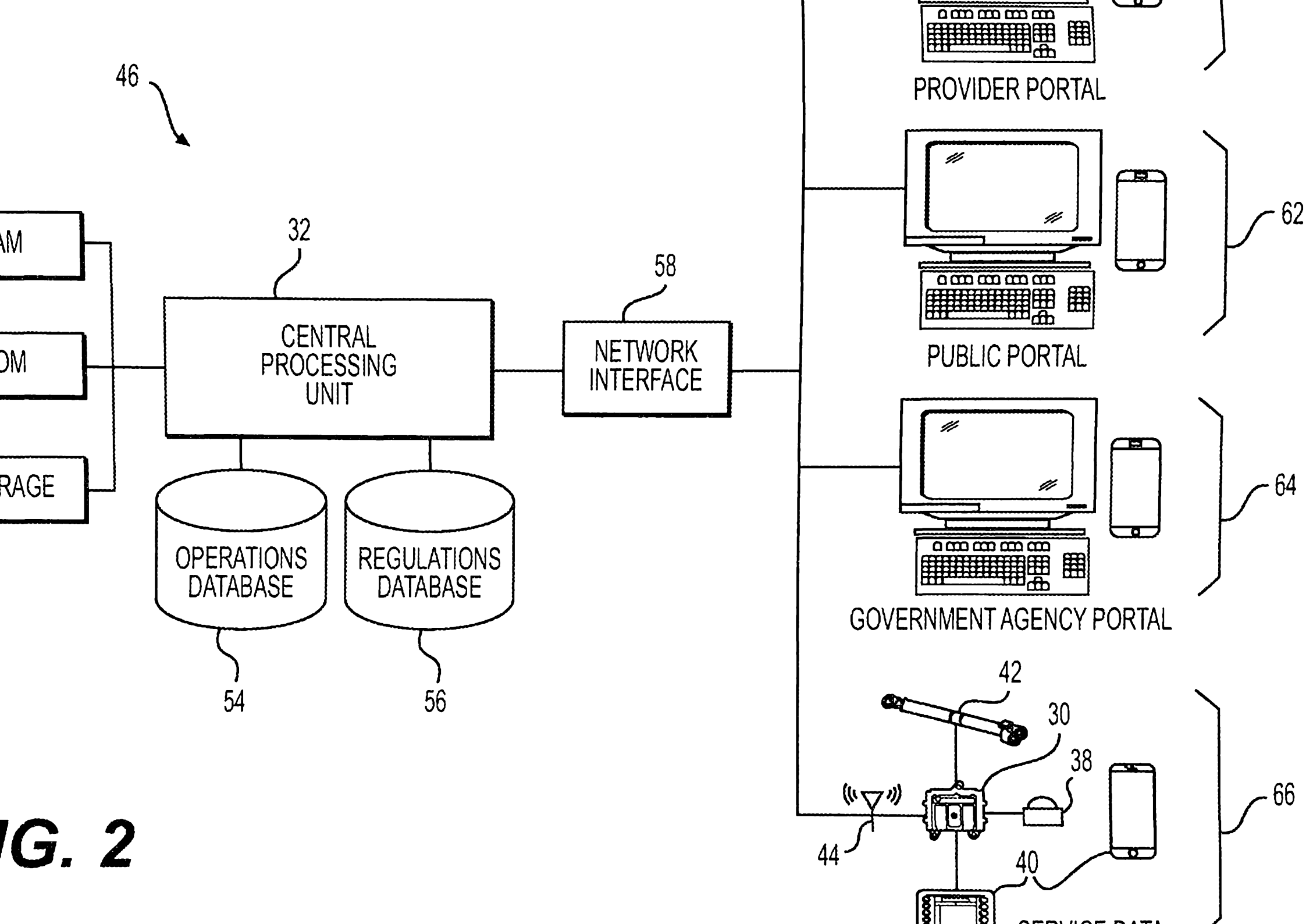
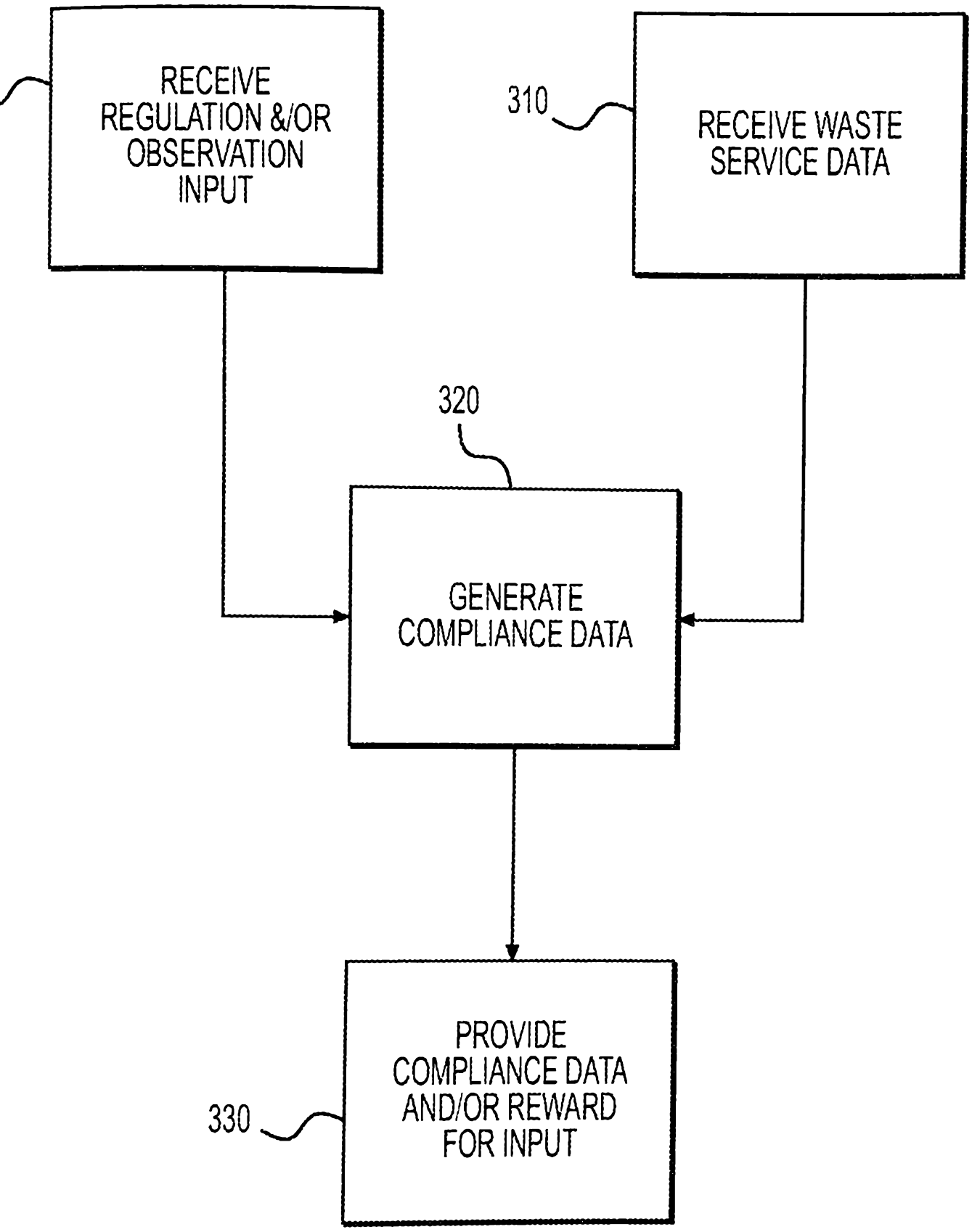

46
AM
OM
RAGE
32
CENTRAL PROCESSING UNIT
58
NETWORK INTERFACE
OPERATIONS DATABASE
REGULATIONS DATABASE
54
56
PROVIDER PORTAL
62
PUBLIC PORTAL
64
GOVERNMENT AGENCY PORTAL
42
30
38
44
40
66

FIG. 2


RECEIVE REGULATION &/OR OBSERVATION INPUT
310
RECEIVE WASTE SERVICE DATA
320
GENERATE COMPLIANCE DATA
PROVIDE COMPLIANCE DATA AND/OR REWARD FOR INPUT
330

Abstract of the Disclosure

EM AND METHOD FOR EXCHANGING WASTE SERVICE REGULATION AND HAULER COMPLIANCE DATA

A system is disclosed for managing waste services. The system may have a memory uter-executable instructions stored thereon, and a processor. The processor may be to execute the instructions to receive, via a first portal, input regarding a regulation for a icle. The processor may also be configured to execute the stored instructions to receive, d portal, waste service data associated with monitored operations of the service vehicle. sor may be further configured to execute the stored instructions to make a determination e waste service data regarding the service vehicle being compliant with the waste servic and to show compliance data on the first portal based on the determination and in return ut.