(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
31 January 2002 (31.01.2002)

PCT

(10) International Publication Number
WO 02/08781 A2

(51) International Patent Classification[7]: G01S 5/02

(21) International Application Number: PCT/BR01/00088

(22) International Filing Date: 19 July 2001 (19.07.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
PI 0003813-0 21 July 2000 (21.07.2000) BR

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(81) Designated States *(national)*: AU, CA, CN, IL, JP, KP, MX, NO, RU, US.

(84) Designated States *(regional)*: European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).

Published:
— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 02/08781 A2

(54) Title: RADIO NUMERICAL LOCATING SYSTEM

(57) Abstract: It is an invention that matches the localizing functions of any chosen object automatically with use of localization centers or not, connected via radio for transmission of data; moreover it utilizes commercial AM radio transmission waves, by a method of triangulation between three transmitter source in the space used to detect any object searched for. This system uses a system of mobile radio telephony to transmit its parameters in order to define its coordinates of localization, together with its optional receiver central control. In this system we do not utilize detection satellites of search. Also we do not employ any iterative process, but only unknown mathematical solutions which give us precise and fast results. Among all its uses we have: localization (detection) of persons, cargoes, mail-bags, vehicles, animals, etc., and once that its objective is to localize its own mobile unit, also should be inserted as an instrument of dash-board to vehicles. In case of airplanes and boats, the coordinate of the system well put aside the V.O.R. the build in radar and its control tower. In addition the private aviation system could have a self detector entirely for private use.

DESCRIPTIVE REPORT ON AN INVENTION PATENT FOR A "RADIO NUMERICAL LOCATING SYSTEM"

This system refers to an invention of localizing any type of vehicle lost by tracing it there a system teleradio mobile, using for such a mathematical formula with a quick return, avoiding the sise of complex computer calculus.

Today, there are many systems in localizing moving vehicles but all of them using the GPS plataform, and satelites, other use some forms of localization, but all of them run into the same system: These is the GPS background. In this system we have the localization in latitude x longitude thru an automatic private system that utililize formulas not know yet, defined mathematically in order to obtain its localization.

In order to solve a few problems, we developed some mechanisms to improve the quality of obtaining feeding-data called "angles" in a highly defined way for this invention.

At the some time we, perceived the inconvenience of bring each individual the localization of a searched object (item) once that this system permits to fully localize the object as a whole, since this system permits directly localization with first any central system, by broadcasting only the angles, being without the greatest evolution of our system we found in central systems some other alternative of detection without discarting the just indepedent by radio in VHF, CB, SSB, and others, and in the way of broadcasting AM there the triangle method using wave length of 3 broadcasting transmitter in the area of trajetory of the searched object.

We found an alternative option and more feasible by embodyng at this system the mobile radio telephony in order to define points to coordinate the detection set. We can add some telecomunication digital system ain order to transmit the coordinate obtained the radio numerical system has its ower mathematical formulas to localize its objects with out the satelite use.

This invention can be better understook there a detailed description, accordinghy with the figure shown: where ...

Figure 1. is the diagram in blocades representing the method of a localizing unit.

Figure 2. is the way (method) that shows the detection invention we are can see the 3 fixed points to define the points thre coordinates – here we observe 2 angles as the only variables. In reference to this figures, we observe the dynamic characteristic to the firmware, and the blocade diagram as shown in figure 1.

A1) motivated for a transponder in link of RF, the wave enter [antenna 2] in (RXTX), and turns of the Decodified (COD/DEC) of the codified pulses enhancing the microprocessor (MPCD);

A2) the program turns on an serial interface (RS-232) that return the eco sound back to the transceptor (RXTX), and sent the detected data in to the memory, turning it off promplly;

B) the memory is remade;

C) the microproceessor (MPCD) presents a frequency from the first broadcasting point to the compared model (COMP), that can be the type UART or include in to the software;

D) the generator of impulse (GR) is activated;

E) the sintonizer (detector) varactor in (RX) sweeps the model;

F) the generated frequencies are presented in (DISPLAY) and in the digital compared model (COMP);

G) the compared model turns the microprocessor (MPCD) feasible and holds it in stops (TR) the addicional charge given to the generator of impulse (GR), while it was emission of the passo

motor in the compartment of (LOOP), or equivalents systems, to retrace the wavelength on radio beacons, or short wave thre thru antenna 1;

H) once we obtain the sintonization accordingly to item (G) the chosen radio, as item (A), the software will search in the data bank the coordinates in its detection as it was programmed.

I) once the self-mechanism (LOOP) of the antenna (item G), the conversor digital analogical (A/D) get the continuous sinal variatins of (CAG), introducing in to (MPCD);

J) the level of dips of the "CAG" defines the "zero point" in the process of counting the number of impulses that it'll iniciate the measurement of the angle (Fg), which signifies the matching of the straigth line (AX) contained in the algoritmo of the software, fig (2);

K) when the amplitude returns to level "BW" programmed the software automaticaly procceds the change of transmitter, sending the second frequency previously programmed to the compared model (COMP), without any changes in counting the impulses in order to mensurate the angle size;

L) the generator of impulse (GR) keeys on its way processing a new sweeps thre the dial and when the display frequency is the same to the presented frequency by the (MPCD), the compared model do the "halting" of (TR), of the generator of impulse determining the frequency definided by the receptor (RX);

M) the software search the coordinates of the transmitter (C) previously programed ;

N) the conversor analogical digital presents a digital sign of the (CAG) top the (MPCD);

O) the level of deepness in the sign of the (CAG) marks the crossing of the straight line (CX), defined by the coordinates already programmed, as well as the final impulse counter that shows the angle (Fg);

P) the software returns as in the item "H", now presenting the frequency of the transmitter (C) , previously programmer to the comparaded model (COMP) initializing the impulse couting in order to define the angle (Mg);

Q) the signal of the compared model (COMP) frees the look (TR) and the generator of impulses (GR) keeps on going in order to sweeps the dial (field) in sintonized frequencies by (RX), and when the frequency of the (DISPLAY), turns igual to the one presented by the microprocessor (MPCD) to the generator from where the generator of impulses (GR) is halted (looked) by (TR);

R) the software searches the coordinates of the transmitter (C) previously programmed;

S) the conversor (A/D) presents a digital signal from the "CAG" to the microprocessor (MPCD);

T) the level of deepness the matching point of the straight line (BX) defined by the coordinates in the algoritmo, as the final counting og impulses, we get the angle (Mg); figure (2);

U) ends the search process and the software abandom this part of the system;

V) ther software develops thru the algoritmo, and it calculates all the matematical formulas needed;

W) And the numerically presents in the display of the searched vehicle, accordingly with the localizing system display the points that were defined by the coordinates from latitude and longitude coordinates obtained finalizing the final goal that is the localization it;

X) fullfilled the coordinated data giving objetives obtained to the user in its memory;

Y) the message as a whole can be transmitted by the microprocessor (MPCD) thre the serial interface (RS-232), if needed, recharging the transceptor (RXTX), that itwill show all the system thre radio telephony with in the codifier but simple fying the telephone numbers from its cell phone, thus fullfilling its objective there is to display and show its auto detection.

In figure 2, we observe three (3) straight lines A(P,M), C(Q,L) and B(R,N) that it'll form the three fixed lines, and they'll find a point X(S,K), while they form two angles (Fg) and (Mg). Obtaining the coordinates of the mobil point X(S,K), there is the final goal of this invention.

COMPARISON BETWEEN THE SYSTEM AND SOME KNOWN SYSTEMS ALREADY PATENTED

This work refers itself as a explanation complementary among inventions to localize objects thru a **RADIO NUMERICAL LOCATING SYSTEM** by Jadir da Silva Neves, compared to the following existing Patentes:.

Patent U.S. 6,246,861, Patent U.S. 5,613,205, Patent U.S. 5,404,376, Patent U.S. 5,208,756, Patent U.S. 5,657,487, Patent U.S. 6,236,365, Patent U.S. 4,908,629, Patent U.S. 4,891,650, Patent U.S. 6,230,563, GPS Systems GPS, and GPS-BASED, on GPS-DIFERENCIAL.

COMPARING PATENT U.S. 6,246,861 TO THE SYSTEM:

1) "Localizing the mobil unit thre the cell phone.

The RADIO NUMERICAL LOCATING SYSTEM has not the goal (objetive) to detect the mobile unit, but to detect its own mobil unit, once it does not employ resources from radio cell-phone avoiding all complexities the cell phone offer us.

2) "The costs of the system":

The RADIO NUMERICAL LOCATING SYSTEM has not a high cost system to operate for to obtain only its auto detection, its price it is similar to a mobil cell phone, there is: the system does not need towers, central control, and monitoring, as the GPS, and satelites as well as other system demand.

3) "Behavional changes and different patterns":

The RADIO NUMERICAL LOCATING SYSTEM will not interfere in beavional changes to the users of cell phone, due to the fact of its exclusive (unique) transmission of data.

4) "Many equations would be needes for each given channel":

The RADIO NUMERICAL LOCATING SYSTEM does not employ many equations an its solution for it calcules and offers numerical coordinates to the needed detection made thru one unique mathematical operation.

5) "The majority of the equation are selected and reserved for each station of its radiobased. Many algoritmos do exist to solve these equations of manyintensity signs and one others algoritmo is forecast."

The RADIO NUMERICAL LOCATING SYSTEM does not employ defined equations for acquiring previous reference signal, it only search the coordinates to detect the towers from which signs are transmitted and it returns in a chain of sequencial solution retracing the mobile unit.

6) "Previous solutions to the equations":

The RADIO NUMERICAL LOCATING SYSTEM does not use any previous proceedings to obtain detections or any other previous equation.

7) "No variations obtained":

The RADIO NUMERICAL LOCATING SYSTEM does not shows any variations in the results or any margin of error in this mathematical result, for they tend to zero.

8) "and to improve it would need a variety estimated serie to localize diferent places for each cell-phone"

The RADIO NUMERICAL LOCATING SYSTEM does not employ any forcast to its solution, but only one mathematical equaltion for its solution.

9) " the results would be improved if we consider a unique factor of atenuation"

The RADIO NUMERICAL LOCATING SYSTEM does not depend on any parameter thre the radio waves.

10) "it needs also detailed previons mensuration of the cowered area that the cell-phone works"

The RADIO NUMERICAL LOCATING SYSTEM does not need to previous determination on field waves, but only the coordinates from the towers regional emission, as pre-requisites.

11) "fading effects on channel:"

The RADIO NUMERICAL LOCATING SYSTEM is not sensible to the effect of "channel fading", for its based on the relativity references tensions.

12) "from measures read it will obtain the average measurement"

The RADIO NUMERICAL LOCATING SYSTEM does not works with an average reading, but thre precise sequencial measurements in a short space of time.

13) "the base station should be divided accordingly with certain groups"

The RADIO NUMERICAL LOCATING SYSTEM does not discriminte regions of work, but it can determine a whole national coverange without use of any satelittes, for it is proceeding is mathematical and it being so, permits operation in any distance from micro to macroscopic set.

14) "the working area of lach region for this cell must be examinaded before hand to determine the model of channel that it'll produce better resuslts."

The RADIO NUMERICAL LOCATING SYSTEM does not change procedings as parameters in fact of the region displayed the system is best used if we define before hand the channel that as oned procedure the best results.

15) "A new different algoritmo"

The RADIO NUMERICAL LOCATING SYSTEM does not need, but only one algoritmo in its operation.

16) "The Taylor series is an estimated process, it is a method iteractive."

The RADIO NUMERICAL LOCATING SYSTEM does not use the "Taylor method", it is a self active one, only uses a mathematical basis for calculus, thru a unique formula.

17) "for each iteraction the vector of a problem can be the solution of minimum squares."

The RADIO NUMERICAL LOCATING SYSTEM does not use employ resolvers from any obtained solution by aproximation.

18) "one repetitive program for unknown quantities calculus cycles to a convergian to the final value number."

The RADIO NUMERICAL LOCATING SYSTEM does not operates in na unknown quantity of cycles of convergency by aproximation to the value of a final number.

19) "Having in mind to reduce great differents between the forecast signal and the one obtained for each channel, and in each situation to detect the mobil unit."

The RADIO NUMERICAL LOCATING SYSTEM does not forecast the signal intensity in the region but the relation ships in between the intensity measures from the instalation signal.

20) "Eventually it could be abandoned, left aside, signals measurements of intensity from each station whose base is different or reunion of base station"

The RADIO NUMERICAL LOCATING SYSTEM needs all signals with any intensity from any source of origin or a groups of signs.

21) "The algoritmo utilized to find initial values from that same algoritmo that would solve the intensity of signal edquation also can be utilized to reduce errors in forecasted positions"

The RADIO NUMERICAL LOCATING SYSTEM does not utilize algoritmo in corretiony errors of estimated results, for it offers the exat localization. But if changes of result occurs its only defines movements on part of the mobile unit.

22) "If any results do not agree on the estimated ones, they will be discharged and not utilized in the equation of signal intensity."

The RADIO NUMERICAL LOCATING SYSTEM does not work on estimated previsions on calculus of its coordinates of detection.

COMPARING PATENT U.S. 5,613,205 TO THE SYSTEM:

1) "The mobile signal unit lenght wil be taken as basis from the determining results given the inputs in order to localize the cell telephone."

The RADIO NUMERICAL LOCATING SYSTEM does not execute verifying sweeps in its basic units.

2) "the matemmatical iteraction in which rthe delay time increase in obtaining the soluction of the coordinates of detection."

The RADIO NUMERICAL LOCATING SYSTEM does not delay any time in obtaining the localization wished for it works with a mathematical direct formula.

3) "Added complexites to force the cell-phone to accomplish various handoff unnecesarily"

The RADIO NUMERICAL LOCATING SYSTEM does not force the mobile unit to inform any information that is not possible or wanted by the user.

4) "handoff method that can interrupt or also cause degradation in the quality of the call"

The RADIO NUMERICAL LOCATING SYSTEM does not execute verifications, so its function is not displayed.

COMPARING PATENT U.S. 5,404,376 TO THE SYSTEM:

1) "Each base radio sation transmit information from its localization to the mobile units. This information consists of a scheme of probable intensities of previous measured fields the lenght of its are of work which is the function of the distance."

The RADIO NUMERICAL LOCATING SYSTEM does not employ measures of field intensity in its funtion, in result is not needed an scheduly list parameters to work.

2) "The mobile unit also transmit in its mobile unit intensity measures of signal as base station."

The RADIO NUMERICAL LOCATING SYSTEM does not demand a continued signal transmission in its mobile units, but, only one transmission in short periods and when its questioned its localization.

3) "needed to actualize it shape of propagation of your wave transmitted:"

The RADIO NUMERICAL LOCATING SYSTEM has not a restricted area of work.

4) "requires extensive modifications in its mobile units and the base radio station"

The RADIO NUMERICAL LOCATING SYSTEM does not required necessarily radio stations in the search for the localizing process, for it has its mobile units exclusive.

COMPARING PATENT U.S. 5,208,756 TO THE SYSTEM:

1) "Uses a system or a detection gatch set in one vehicle that monitors the received signals with certain intensity from the base stations set around."

The RADIO NUMERICAL LOCATING SYSTEM does not need any sweepers for verifying the electrical field or any orther process to detect this field.

2) "The method assumes the signal length as well as the potency of (RF) transmitted from each basis station, be known precisously during the work (test)."

The RADIO NUMERICAL LOCATING SYSTEM does not operates based on field intensity measures."

3) "That information is filled ints the memory for each item of localization, the archive employ a scheme to register distances for each channel to obtain the probable distance between the based radio station and the mobile units."

The RADIO NUMERICAL LOCATING SYSTEM does not work with schedules but with calculus, nor it works with probable distances, but with its exact distances from the coordinates.

4) "So it uses distances to triangulate the localization of the mobile station."

The RADIO NUMERICAL LOCATING SYSTEM does not get of the executes the essential triangulation, but is realized thru mathematical operations kept with in its software.

5) "If addcional equipments is needed or any modification is required, the system will use the same exponential equation to model all the channels."

The RADIO NUMERICAL LOCATING SYSTEM will not commit any error when emplying differen methods for each situation as a problem, for the solution to any problem is mathematical na general.

6) "But the radio channel, also can vary and this characterizes one equation unique and very difficult."

The RADIO NUMERICAL LOCATING SYSTEM will not be subject to similar parametrical variations, for it not depends on intensity of the given distributed signal in one area.

7) "the lach of precision of the given signal depends on the topographic and atmospheric set"

The RADIO NUMERICAL LOCATING SYSTEM does not depends on the signal atenuation of reference projected, for it works on relative intensity of signals.

8) "as well as the degenerative reflexions, so that the lost of signal from each base station can vary considerably in relation to the distance of each mobile unit."

The RADIO NUMERICAL LOCATING SYSTEM does not consider the wave refletion, for it does not work necessearily on higth frequencies.

9) "turning all to independent parameters that it'll force inevitable in error in the detection system proposed in this Patent."

The RADIO NUMERICAL LOCATING SYSTEM does not use independent parameters in its proceedings of localization which signifies less oportunity to errors.

10) "if happeus any change in the exponencial atenuation thru the way"

The RADIO NUMERICAL LOCATING SYSTEM does not consider any alterations in the potency or shortcomings in its signal reference, for it works in relation with the same.

11) "data keps on file should be actualized."

The RADIO NUMERICAL LOCATING SYSTEM do not utilize reserve data as a pre-requisite of signals reference to be distributed in certain areas, but reserve all the solutions found sequencially in any area for later detection of the mobile unit.

COMPARING PATENT U.S. 5,657,487 TO THE SYSTEM:

1) "during intensity reading from the received mobile unit and its value is comparad with its pre-set value is compared with the forecast value that that will be around the base station with the mobile unit."

The RADIO NUMERICAL LOCATING SYSTEM does not compare between parameters already defined by the mobile unit, but it works diretly the reference signals in any adversity of instant amplitude.

2) "this system divide the cell-phone coverage region within great areas of reach."

The RADIO NUMERICAL LOCATING SYSTEM does not discriminates actuaction areas or regions.

3) "The amplitudes of signals must be pre-determined."

The RADIO NUMERICAL LOCATING SYSTEM does not question the amplitudes of signals references.

4) "The measurements of the MAHO taken there the mobile units are utilized for maping."

The RADIO NUMERICAL LOCATING SYSTEM does not need maping for previsions on amplitute distribuition on the reference signals

5) "within any specific localization"

The RADIO NUMERICAL LOCATING SYSTEM does not discriminate any areas it works.

6) "The possible localization obtained are confirmed by verification."

The RADIO NUMERICAL LOCATING SYSTEM does not work with possible localization of the mobile unit, but the exact localization of it.

7) "requires signals intensity measurements in extensive areas in order to be made localizations."

The RADIO NUMERICAL LOCATING SYSTEM does not demand any effort in measiring the distribuition signals for it only needs to compare signals.

8) "the possible areas in which may be found the mobile unit"

The RADIO NUMERICAL LOCATING SYSTEM does not work with possible localization of the mobile unit, but really it obtains its exact localizations.

9) "could be omited areas of work"

The RADIO NUMERICAL LOCATING SYSTEM does not discriminate its working areas at thought it works on reference signals based on far distant places.

10) "Due to topografics variations and regional soil details each station base has to fill information on this base station."

The RADIO NUMERICAL LOCATING SYSTEM does not require schedule data, for the information needed will refer to the coordinates from the source of signals.

COMPARING PATENT U.S. 6,236,365 TO THE SYSTEM:

1) "constitutes this Patent of na improved method of localizer in an area of work for cell-phones."

The RADIO NUMERICAL LOCATING SYSTEM does not have the aim to localize a cell phone, but to localize one unit that can be eventually a mobil one.

2) "Based on receiving the signals from three base stations towers"

The RADIO NUMERICAL LOCATING SYSTEM does not depend on the time taken by the signals.

3) "where a station receives a signal prior to a second"

The RADIO NUMERICAL LOCATING SYSTEM does not relate comparisons of the delayed signals´time, but it works only with the signals, due to reflexions we can get crooked final signals.

4) "furnish addcional localization measurements to localize the cell-phone."

The RADIO NUMERICAL LOCATING SYSTEM works with well set frequencies.

5) "the results are sent by Internet"

The RADIO NUMERICAL LOCATING SYSTEM will not show necessarily its findings thru the Internet, for each unit will only answer to questions made by the user, numerically or verbally, in a informatized way in a feed-back sequencial localization set ups.

6) "using difference of arrival of receiving in relation to an other signal, as the case of radar or GPS."

The RADIO NUMERICAL LOCATING SYSTEM does not depend on the time signal´expansion.

COMPARING PATENT U.S. 4,908,629 TO THE SYSTEM:

1) "The level of signal intensity is detected by a working set up."

The RADIO NUMERICAL LOCATING SYSTEM does not need intermediate sensorial signals.

2) "in proximity and for a long line of vehicle."

The RADIO NUMERICAL LOCATING SYSTEM is not exclusively to obtain restrict area localization, but to localize any point, vehicle or person with in any area.

COMPARING PATENT U.S. 4,891,650 TO THE SYSTEM:

1) "Reveals a self-made process set for a net of analogical cell-phone in FM."

The RADIO NUMERICAL LOCATING SYSTEM is not apropriated to localize mobile units, but mainly to localize is source.

2) "includes a mobile transmitter placed in a vehicle so that it can be detected."

The RADIO NUMERICAL LOCATING SYSTEM does not use a transmitter that reflects continuons waves to be detected.

3) "transmitter send a signal alarm for activation to the localizers detectors based on radio local stations."

The RADIO NUMERICAL LOCATING SYSTEM does not irradiate any specific signal to deflect to detectors but transmit its coordinates directly to the user.

4) "broadcasting to central station data that indicate the signal intensity, from the received signal identity of the base station that will receive the signal."

The RADIO NUMERICAL LOCATING SYSTEM does not demand a central receiver station, for each user can be solely one user.

5) "these data are processed to determine the distance from the vehicle and each of the radio station base, and thru triangulation the vehicle position."

The RADIO NUMERICAL LOCATING SYSTEM is not involved with only determination of distance and the triangulation in determing position of the vehicle search, for cell these formulas are within the algoritmo that is already given on the coordinates of this vehicle.

COMPARING PATENT U.S. 6.230.563 TO THE SYSTEM:

1) it treats on developing technologies to be applied to micro machines, or self mechanisms for systems controlled by automatic pilots of airplanes, and also Nasa regonizide, due to the use of micro gyroscope, and called Coriolis"

The RADIO NUMERICAL LOCATING SYSTEM does not have in its objective anything similar to the above Patent

COMPARING THE GPS AND GPS DIFERENCIAL (DGPS) TO THE SYSTEM:

1) "Includes higth costs in electronic equipments"

The RADIO NUMERICAL LOCATING SYSTEM wil not have expensive costs, for it does not use GPS, satelites, transmitter, it'll need transmitting radio signals already in existence.

2) "The GPS best works when it is in straight line region with no deflections."

The RADIO NUMERICAL LOCATING SYSTEM does not worry with the view line or directness that chrachterizes the high frequnecy expansion signals, for it does not demand hight frequencies.

3) "Inhabited populated areas, where errors can provoke or not conflicts in measuring detections resulting in substantial imprecission in the detection system"

The RADIO NUMERICAL LOCATING SYSTEM does not operates in high frequency as cell-phone and GPS to obtain its auto localization so it'll not have any conflict in getting set with its objective.

4) "By using the arrival time and the triangulation to localize thru the satelites based system, such as the commercial and military version of GPS."

The RADIO NUMERICAL LOCATING SYSTEM does not employ analogical system such as time of reaching time as radars or GPS. The system obtains its distances from its coordinates.

5) "when have a certain error percentage in its commercial version"

The RADIO NUMERICAL LOCATING SYSTEM works for all versions be it private, commercial or military, for it does not depend on errors, but in its algoritmo that is in its software.

6) "is based in a delayed signal time received simultaneouly by the work of at least thru satelites"

The RADIO NUMERICAL LOCATING SYSTEM is not based on satelites systems to obtain its localization.

7) "one grounded station as receptor base from GPS, next to the object to be localized determines the difference between the time in wich each satelite transmit a temporizer signal in each received signal, is based the time differencial that determines the detection of the object."

The RADIO NUMERICAL LOCATING SYSTEM does not need any intermediate stations close to the object in order to localize it. The system only needs its own source.

8) "the intensity of the signals received from the satelites are low"

The RADIO NUMERICAL LOCATING SYSTEM does not need on a high intensity beam as reference to obtain its auto detection.

9) "The GPS needs at least 3 satelites simultaneonly above horizont with aproximately 60 degrees to be efective."

The RADIO NUMERICAL LOCATING SYSTEM does not need any of this techniques to obtain detection, for it does not use hight frequency.

10) "the weather and time conditions such as clouds terrain imperfections, such as hills trees, buildings restrict the reception capacity from GPS to determine its detection position"

The RADIO NUMERICAL LOCATING SYSTEM is not involved with weather, terrain such as hills, mountains, trees that would halt the expansion of the reference signal, for it does not need high frequency.

11) "Besides the satelites signals are send to a receptor from GPS and one initial signal will be detected."

The RADIO NUMERICAL LOCATING SYSTEM does not depend on other receptor.

12) "and it would be in a relative waitting time of various minutes having the objective to determine the receptor position"

The RADIO NUMERICAL LOCATING SYSTEM has no fading in its signals and obtain and transmit its auto detection within seconds.

13) "susch delays would be unacceptable in many other applications, such emergency on a transit vehicle."

The RADIO NUMERICAL LOCATING SYSTEM does not limit its work to stopped or parked units, for due to its fastness the vehicle can be traced in a quick transit.

14) "GPS Differencial, a DGPS system, ofer correctional proceds to adjust corrects time directioned syncronism. Such schemes of correction include transmitions of data correction signals. Thru radio in both ways tying and transmitting via sub-holders the waves of FM radio."

The RADIO NUMERICAL LOCATING SYSTEM does not need to send correctional signals of time, for it obtains its coordinates, once its coordinates are obtained by mathematical operations.

15) "This have been found a with eventual unadaptations provoking so limited succeso in obtaining detections."

The RADIO NUMERICAL LOCATING SYSTEM does not have mobile units, for it does not depend on any syncronion command, but in its own data.

16) "GPS-BASED are systems of experimental localization that have been tested where signals from GPS are received and transmitted to a set central, where the data are centralized to develop calculus of detection"

The RADIO NUMERICAL LOCATING SYSTEM does not demand any answering central station, or any base units in order to calculate its own self localization.

17) "This system has obtainned limited successes in detection due to a satelite limited reception from its signals as well as its high operational costs"

The RADIO NUMERICAL LOCATING SYSTEM does not have limited number of sources with, for its reference signals will be always in its own source of transmittion.

18) "added to ther electronic complexily set required"

The RADIO NUMERICAL LOCATING SYSTEM does not need highly complex industrialization proccess, as electronic factory, for its operacional systems are known thru dayly services.

19) "to an unexpensive detection of a mobile station"

The RADIO NUMERICAL LOCATING SYSTEM will not have hight costs, but reduced costs of implementation in relation to its operationality in order to obtain the detection of its own mobile unit.

CLAIMS

1) The Radio Numerical Locating System permits studies in reference to situational problems since as: agrimensure, topography and similars that without the use of any pre-defined points cover measure distances based solely in angles given by this system of electrically detection, it can have a an unit of continous transmission thru radio-waves, maping aerial routes, sea or ground vehicles on any size, velocity or position or even better protecting human beings, cargoes or money on great volume is transport. The system has a number display intelligent connected to a computer and to a commercial broadcasting system or to a private radio-telephony system, that it'll be able to present. Number corresponding the numerical coordinates of a given point X(SX,KX), corresponding the detection of a detection operating from a unit or plataform that it'll shown the numerical coordinates of latitude and longitude in display given (shown) in vehicles dash-boards for its auto detection. This will provoke a connection with a microprocessor in blocks or a radio-phonic or radio-diffusion build-in controls that interface serial (RS-232) recorder on microtape, codyfyer and decodefier analogical conversor bytes comparisons display alfa numerical generator of function of transmitter set breack coil halt, radio sintonized by parametrical dyodes, and anthenn set directional in the base of the control loops which is controlled by a micro-motor, or equivalent process, **characterize itself** in it, we'll have mobile radio telephony for transmission waves determining the coordinates of detection together with central base for answering responses, and incorporate a telecommunication digital system to transmit its coordinaters of detection obtained.

2) The system accordingly with its Reiteration 1, **characterize itself** to have a hand-made model similar to its based principles, obvionely for demonstrative purposes as well as the self-detection that is basically on presentation that it shows that:
   a) a build in maps on the table;
   b) traspased in important closen areas;
   c) cach hole is the localization of a radio tower;
   d) one ring tie on a line;
   e) these lines passed thru the holes on the map;
   f) the ring should be available and movable over the map;
   g) each line is to be straighter by a weight over the table;
   h) verify that two angles are formed in between three lines;
   i) the angles alter moving the ring;
   j) thru a personnalized a mathematical operation for this system,
   k) we obtain the coordinates for the ring detection.

3) This system accordingly with its Reiteration 1, is **characterized by** Reiteration (1) and (2), for the principle of detection that employs on AM radio waves that transmitting on OM or in OL (Long Waves), due to its directional anthemns, made of ferryte, we can get azimuths and the angles between emmitting towers which it is enough to its self-detection, we have to detect the transmitters and two angles formed between them (lines) where we'll get its auto detection.

4) The system accordingly with Reiteration 1, **characterizes by** oiperating from na improved uint that embodie date hour, memory function of seach by using "chips", voice synthetizers and also the use of audio microtape where the address of rthe detection will begiven thru reavaliation of trends in videos, impressors and graphics.

5) The system accordingly wich Reiteration 1, **characterizes by** operates itself from a special unit that enables the emissions to the eventual base station to do the services of detection.

6) The system accordingly wich Reiteration 1, **characterizes itself** to question, from a remote control unit, the aim of the user or the central base, with on without the knowledge of the person controlling the detector or central base.

7) The system accordingly wich Reiteration 1, **characterized to** furnish the latest informations about the coordinates obtained and contained in memory, when the questionned "beep" signal to the transponder enables and charges it directly or thru the central base to the "beep" of messages as it is set in the patterns used thru the telemessages net.

8) The system accordingly wich Reiteration 1, **characterizes itself** by confirming identification or code numbers, or plate, company's name, owner or phones before even to be obtained any is formations to be known, as on essencial rule in each question.

9) The system accordingly wich Reiteration 1, **characterize itself** it is set on the conversion of values of the coordinates obtained to residence address, in "SOS" signals or synthetised voice that inform such addresses.

10) The system accordingly wich Reiteration 1, **characterizes itself** by in including telephone dialing signals as the system DTMF (dual tone multifrequency), when connected to Radio PX, PY, VHF, UHF net, etc..

11) The system accordingly wich Reiteration 1, **characterizes itself** by being able to command the "beep" by remmote control build in a audio transmitter or started by a magnetic card.

12) The system accordingly wich Reiteration 1, **characterizes for** controlling pseupherics capzizers of parameters.

13) The system accordingly wich Reiteration 1, **characterizes itself** to control peripherics servo mechanisms of balance (gondola) of a directional anthemn to obtains the angles as parameters needed in mathematical solutions.

14) The system accordingly wich Reiteration 1, **characterizes for** memorizing results added (accumutaled) in the self detection process, to be at hand when the questionning to the intercommunication system is seached to minimizer the "call timer".

15) The system accordingly wich Reiteration 1, characterizes itself to suport the coordinates determined by the user.

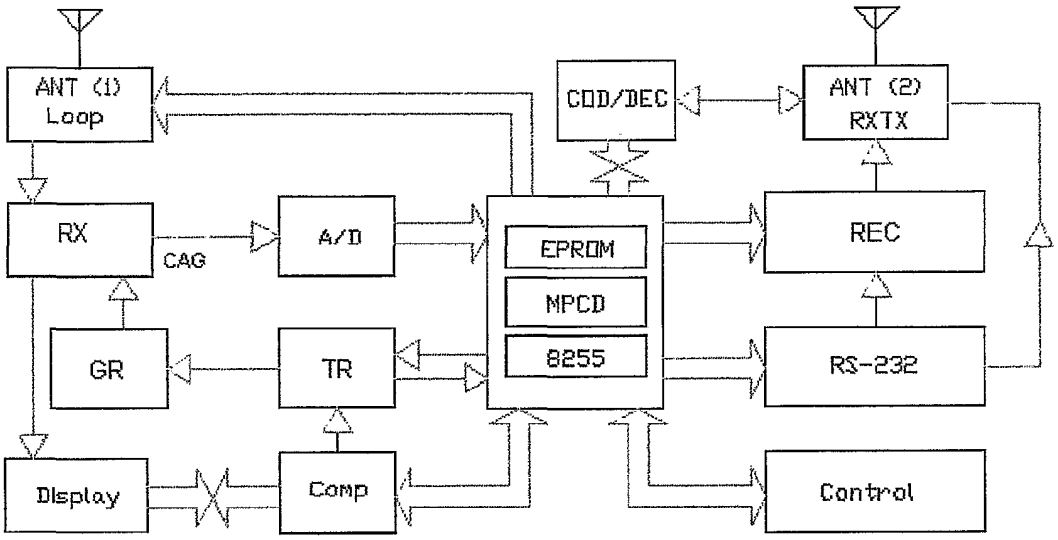
ANT (1)
Loop
COD/DEC
ANT (2)
RXTX
RX
CAG
A/D
EPROM
MPCD
8255
REC
GR
TR
RS-232
Display
Comp
Control

Figure 1

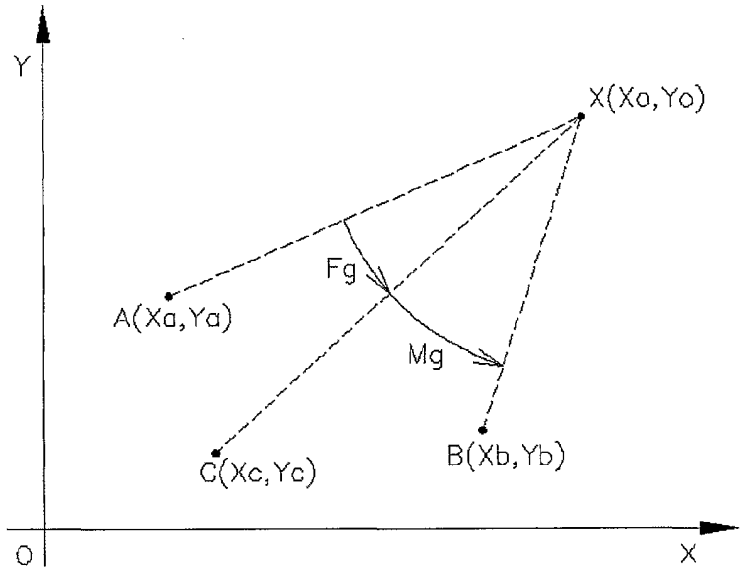

Figure 2