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Specification of position variation system of the natural burial based on the RFID-signal

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Abstract

Position variation technology is composed the vibration status of the flash recognition rate (FRR) and gap recognition rate (GRR) on the diffusing recognition function. The recognition rate condition by the diffusing recognition function is associated with the spreading vibration system. As to search a position of the natural burial, we are consisted of the diffusing value with master and slave point by the RFID-signal. The concept of recognition rate is identified the reference of flash rate and gap rate for variation signal by the diffusing vibration function. For displaying a variation of the FRR-GRR of the maximum and minimum in terms of the vibration function, and diffusing position vibration that was the a diffusing value of the the far variation of the Dif-rf-FA-$\alpha_{MAX\text{-}MIN}$ with 10.85±1.81 units, that was the a diffusing value of the the convenient variation of the Dif-rf-CO-$\alpha_{MAX\text{-}MIN}$ with 3.14±0.35 units, that was the a diffusing value of the the flank variation of the Dif-rf-FL-$\alpha_{MAX\text{-}MIN}$ with 1.47±0.29 units, that was the a diffusing value of the the vicinage variation of the Dif-rf-VI-$\alpha_{MAX\text{-}MIN}$ with 0.24±0.02 units. The spreading vibration will be to assess at the ability of the vibration function for the control degree recognition rate on the FRR-GRR that is showed the flash and gap function by the recognition rate system. Spreading recognition system will be possible to modify of a function by the special signal and to count a diffusing data of spreading vibration rate.

Keywords: recognition rate condition, diffusing recognition function, spreading recognition system, spreading vibration.

INTRODUCTION

Position Location Systems (PLS) have interested a major research topic in recent years due to the potential applications in fields such healthcare, and safety applications [1]. These concerns is appeared a widespread technology for logistics and goods management, have to convenient of RFID tags that can store more information than QR codes or barcodes. However, technology of GPS is not operative in transfer scenarios as there is no direct line-of-sight between the antenna and satellites. In the existing studies, a simple of PLSs has to using based on signal of RFID [2]. Advances in radio frequency identification (RFID) technology have covered a large variety of modern applications fields and recently extra interests are focused on national security and the internet of things and the other application system. Generally, an RFID system consists of readers and tags communicating through radio waves. The tag (transponder) consists of a small chip and an antenna; the reader (interrogator) has the charge of monitoring tag data. Since tags are electronic components, so they were vulnerable to external disturbance and susceptible to fault attacks [3-4]. Cultural industry deployment of this technology is to be faced many challenges concerning position recognition, alteration and stability. These natural burials attracted significant bereaved family are keen to understand their motivation and vision that has become using to propose the RFID. It was a time of great experimentation around what a natural burial ground should look like and how it could most effectively achieve its environmental and ecological objectives [5].

In this study was the item of the position variation technology that is to be composed the position recognition with the diffusing variation by the recognition system. This function is calculated of the diffusing value of the flash rate and gap rate by the recognition modulus that is consisted of to define a point data from the basis reference, is searched a position of the natural burial, consisted of the diffusing value with master and slave point by the RFID-signal. Also, the spreading vibration is to be assessed at the ability of the vibration function with the control degree recognition rate that is showed the flash recognition rate and gap recognition rate by the diffusing recognition function system.

MATERIALS AND METHODS

Natural burial preferences

The natural burials, was to concept of a tree on a grave, as new experiment with different approaches to preserving and creating a range of different habitats that included burial within wildflower meadows, woodland groves, mature woodland and orchards. These natural burials are implied to use the burial of powdered bones of cremated remains under or around trees, flowers, and grass [5-6]. The types of natural

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burial is to spread a powdered bones of cremated remains in which flower burial are buried using flowers around, grass burial made by planting grass and tree burial made with various trees etc. A natural burial plot refers to a section where natural burial is possible [7]. Traditionally, the funeral culture of Korea was habitually to use on the burial. After the cremation rate (52.6%) are preceded primordially the burial rate in 2005, and the cremation rate has been steadily increasing at an average annual rate of 2.8%. As a result, the cremation rate is 79.2% as of 2014 [8], is to become a change to the cremation funeral culture.

According to the report on the social survey released by the National Statistical Office(NSO), as of 2015, funeral styles the most preferred by Korean adults aged 19 and older are 'Natural burial after cremation' (45.4%), followed by 'Enshrinement after cremation' (39.8%), 'Burial in the cemetery' (12.6%) and ‘others’ (2.2%) [9]. Therefore, the environment-friendly natural burial is expected to become the mainstream of the funeral system only if the infrastructure is prepared in the future. In addition data is compared to the previous survey in 2013, 'Natural burial after cremation', 'Enshrinement after cremation' and ‘others’ increased by 0.1%, 1.5% and 0.5%, respectively while 'Burial in the cemetery' decreased by 2.1%. (Table 1)

Table 1. The funeral culture of Korea preferred the funeral styles by the report on the social survey.

Division	Sum	Natural Burial after Cremation	Enshrinement after Cremation	Burial in the Cemetery	Others
2013 Year (A)	100.0%	45.3%	38.3%	14.7%	1.7%
2015 Year (B)	100.0%	45.4%	39.8%	12.6%	2.2%
Sensitization (C=B-A)	-	0.1%	1.5%	∆2.1%	0.5%

Methods of correlation system

The diffusing recognition function (Dif-RF) is appeared the feature of position function on the RFID-signal. Center position activity is analogized the minute changes through flash central rate (FCR). The results of FCR are affected in accordance with the parameter of vibration position rate (VPR). The diffusing vibration function (DVF) is consisted of with exercise of the diffusing vibration change in the flash activity and gap activity [10-11]. The Dif-RF system is using the significant model by the diffusing recognition function system (DRFS). Significant of Dif-RF is using the minute spreading rate that is similar to a control vibration by the center position technology (CPT). Controlled minute vibration is integrated in the spreading position function that is induced by the diffusing flank-vicinage (Dif-FV) tool. The arithmetic feature by Dif-RF is induced with compound of output parameters by the diffusing far-convenient (Dif-FC) in the spreading position function. The vibration function by Dif-RF is using with compound of output parameters by the spreading recognition rate (SRR) in the DRFS. The spreading position function (SPF) was estimated a central vibration technology (CVT) of x-y direction from center of axial (COA) on the CPT of Dif-RF. The spreading recognition rate function (SRRF) is acquired spreading signal from horizontal-vertical mechanisms on the CPT of Dif-RF. The diffusing flash gap rate (DFGR) is acquired the spreading recognition and the spreading function on SRR. The SRR is ignored to counter on the minute spreading signal by the spreading recognition function (SRF) (Figure 1) [12-13].

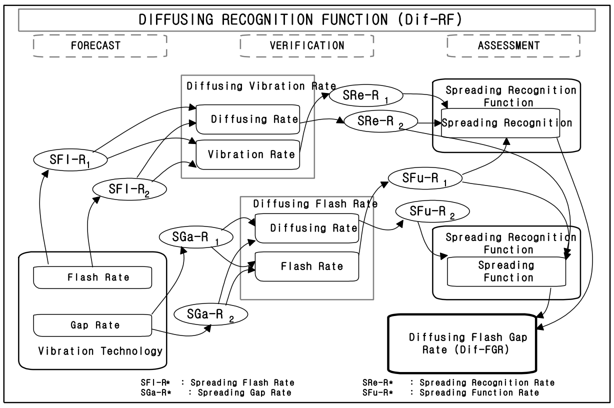

Figure 1. Structure of diffusing recognition function system of the variation rate

2.3 Methods of multiple alignments of evaluation

The measures of central position score on the Dif-RF are Overall Vibration Rate (OVR), Far-Convenient Vibration Rate (FCVR) and Flank-Vicinage Vibration Rate (FVVR). These rates are standard deviations that assess the path of phase around the slave point from the center of the master and are measured in degrees. The vibration rate scores receive the displacement for tag signal in far-convenient (FC) and flank-vicinage (FV). The displacements from horizontal along FC-axes as x-direction, and from vertical along FV-axes as y-direction were evaluated as Dif-RF-FC and Dif-RF-FV respectively. FVVR can find that the phase of the master signal depends both on the propagation channel and the modulating properties of the slave, which can be both frequency and power-dependent. FVVR can measure both amplitude and phase of the received tag signal as I and Q is the of current the far-convenient and flank-vicinage, Dif-FC is the modulated carrier of far-convenient on the Dif-RF, Dif-FV is the modulated carrier of flank-vicinage on the Dif-RF, $\Delta P_{Dif\text{-}RF\text{-}FC}$ is amplitude and phase of the received tag signal on the Dif-RF [14-15].

Where, Z_0 is the input impedance of the receiver. The indirectly measured central position score data, represented as Δγ, is related to the differential reflection coefficient Dif-RF-FC and Dif-RF-FV, can thus be obtained as (1-3):

$$\Delta P_{Dif-RF} = \frac{I_{FC}^2 + Q_{FV}^2}{Z_0},\ \varphi = \arctan\frac{Q_{FV}}{I_{FC}} \quad (1)$$

$$|\Delta_\gamma| = \sqrt{I_{FC}^2 + Q_{FV}^2} = \sqrt{\Delta P_{Dif-RF-FC} + Z_0} \quad (2)$$

$$\angle(\Delta_\gamma) = \arctan\frac{Q_{FV}}{I_{FC}} = \varphi \quad (3)$$

Therefore, the test setting that includes the communication range between master and slave antennas and their system consist of the properly maintain by the monitoring [16-17].

Spreading Center position function (Sp-CPF) requires a combination scores both Sp-CPF-FV and Sp-CPF-FC. The Sp-CPF-vlaue is calculated from absolute α-Dif-RF values, so it is more sensitive to FV-FC and α-Dif-RF level fluctuations. In general, the α-Dif-RF-based Sp-CPF makes use of the free space propagation model (4):

$$\alpha\text{-Dif-RF}(r)[n.u.] = \alpha\text{-}_{Sp\text{-}CPF\text{-}FC}\beta\ /r^{\alpha\text{-}Sp\text{-}CPF\text{-}FV} \equiv \alpha\text{-Dif-RF}(r)[dB]$$

$$= 20\log10(\alpha\text{-}_{Sp\text{-}CPF\text{-}FV}) - \alpha\text{-}_{Sp\text{-}CPF\text{-}FC}\ 20\log10(r) \quad (4)$$

“r” is the range or distance, and $\alpha\text{-}_{Sp\text{-}CPF\text{-}FV}$ and $\alpha\text{-}_{Sp\text{-}CPF\text{-}FC}$ are coefficients that can be estimated from a non-linear regression that minimizes the root mean square (RMS) by a set of between master and slave. The expression rate of α-Dif-RF(r) is already linear with respect to $\alpha\text{-}_{Sp\text{-}CPF\text{-}FV}$ and $\alpha\text{-}_{Sp\text{-}CPF\text{-}FC}$ [18-19].

RESULTS AND DISCUSSION

Properties of the deduction process

The variation of the position is to be captured new function with improved function protocols. Flash rate and gap rate is suggested to effect the assessing by the measuring rate at which to quantify of the correction of spread-position. A serial signal value of the total point of all master segments was observed stable situation by shape of position on the spacious area [20]. The method of these formation areas are used to compare a boundary codes for instability-stability, RFID tags is management of widespread technology that can store more information than QR codes or barcodes. Flash function and gap function is suggested a single measure for effect the variation position on the position. The flash and gap condition is implied amount of variation for the change element on the connection function [21]. Figure 2 shows the developed slave position several based on the master system. Slave positions are injected into the experimented slave condition to check their transform code while this signal is in the open condition. The other slave is kept spread-free-code to provide comparison means as recommended in master control techniques [22].

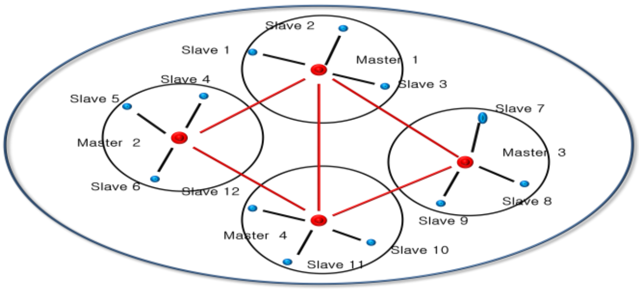

Figure 2. Structure of position variation system of the natural burial based on the RFID-signal

Properties of the position selection

The position variation system of the natural burial are showed the designed slave position several based on the master system. The markings of the locations of the deceased around the grass burial and tree burial are shown in Figure 3-4.

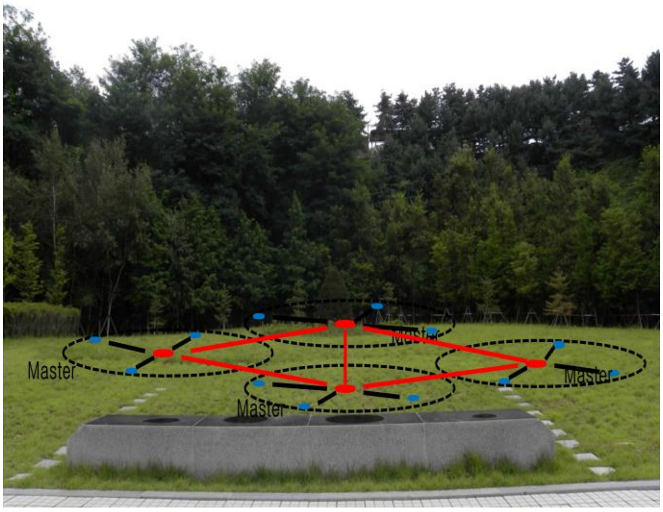

Figure 3. The markings of the locations of the deceased around the grass burial

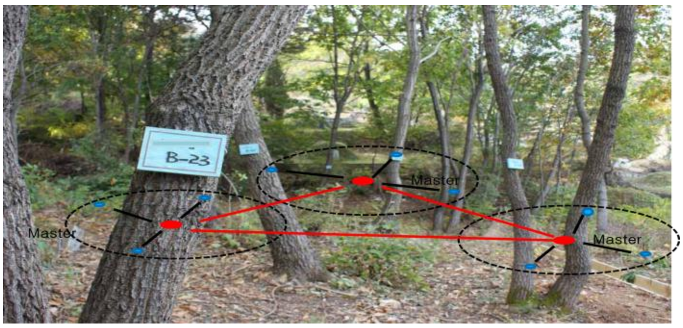

Figure 4. The markings of the locations of the deceased around the tree burial

Properties of the sequence selections

Diffusing Recognition Function (Dif-RF) is confirmed the vibration status of the flash rate (FR) and gap rate (GR) on the vibration technology (VT) condition. VT is to fix the fine objects of the diffusing flash rate (DFR) on the Dif-rf-function. And, VT is to maintain the equivalent things of the diffusing gap rate (DGR) on the Dif-rf-function. The results are confirmed the diffusing recognition function system (DRFS) in accordance with the parameter of flash recognition rate (FRR). The experiment is induced superior an alteration of gap recognition rate (GRR) is shown in the spreading recognition function effort (SRFE). The experiment of Dif-rf-function is created the Dif-rf-α_{AVG}, Dif-rf-$\alpha_{MAX\text{-}MED}$ and Dif-rf-$\alpha_{MAX\text{-}AVG}$ database which are collected from the diffusing signal vibration function by the Dif-rf effort (Table 1). Diffusing signal vibration function data are used Matlab6.1 for the calculations.

Comparison Database of FRR-GRR on the Dif-rf-α_{AVG} and Dif-rf-$\alpha_{MAX\text{-}MED}$ and Dif-rf-$\alpha_{MAX\text{-}AVG}$

Diffusing Recognition Function (Dif-rf) on the far (FA-α) condition is to be show a flash recognition rate-gap recognition rate (FRR-GRR) value for the Dif-rf-FA-α_{AVG}, Dif-rf-FA-$\alpha_{MAX\text{-}MED}$ and Dif-rf-FA-$\alpha_{MAX\text{-}AVG}$ (Fig. 5). The large diffusing of the Dif-rf-FA-α_{AVG} is to the flank-vicinage (FV) direction in the DRFS. Furthermore, Dif-rf effort of far FRR-GRR is the small diffusing to difference between the Dif-rf-FA-$\alpha_{MAX\text{-}MED}$ and Dif-rf-FA-$\alpha_{MAX\text{-}AVG}$ with the same direction in the DRFS. In the Dif-rf effort of far FRR-GRR is confirmed a very large diffusing at 11.94±0.66 unit with Dif-rf-FA-α_{AVG} of the diffusing tag function. In the far FRR-GRR of Dif-rf effort is confirmed small diffusing at 6.38±1.56 unit with Dif-rf-FA-$\alpha_{MAX\text{-}MED}$ in the DRFS. The excellently, this effort of diffusing tag function in the far FRR-GRR is to be show that a diffusing influence is happen the FV direction in the DRFS. It is an important role in the diffusing effort of a Dif-rf-Far of far vibration. In the diffusing of Dif-rf effort is confirmed a very large diffusing at 5.74±1.12 unit with Dif-rf-FA-$\alpha_{MAX\text{-}AVG}$. The spreading phenomenon of the far FRR-GRR is induced excellently to propose the DRFS by the spreading tag in the Dif-rf effort direction. Diffusing Recognition Function (Dif-rf) of convenient (CO-α) condition is to be show a flash recognition rate-gap recognition rate (FRR-GRR) value for the Dif-rf-CO-α_{AVG}, Dif-rf-CO-$\alpha_{MAX\text{-}MED}$ and Dif-rf-CO-$\alpha_{MAX\text{-}AVG}$ (Fig. 5). Dif-rf effort of convenient FRR-GRR is the some diffusing to difference between Dif-rf-CO-α_{MAX} and Dif-rf-CO-$\alpha_{MAX\text{-}MED}$ with the same direction in the DRFS. Whereas, the Dif-rf effort of convenient FRR-GRR is to be confirmed a small diffusing at Dif-rf-CO-$\alpha_{MAX\text{-}AVG}$ of the diffusing tag function on the FV direction in the DRFS. Dif-rf effort of convenient FRR-GRR is confirmed large diffusing at 5.92±0.43 unit with Dif-rf-CO-α_{AVG} of the diffusing tag function. In the convenient FRR-GRR of Dif-rf effort is confirmed small at 1.77±0.14 unit with Dif-rf-CO-$\alpha_{MAX\text{-}MED}$ on the FC direction in the DRFS. The excellently, this effort of diffusing tag function in the convenient FRR-GRR is to be show that a diffusing is happen the same direction in the DRFS. But, it is a minute role in the diffusing effort of a convenient vibration. In the diffusing of Dif-rf effort is confirmed very large diffusing at 1.64±0.16 unit with Dif-rf-CO-$\alpha_{MAX\text{-}AVG}$ on the FC direction. The spreading phenomenon of the convenient FRR-GRR is induced excellently to alter the DRFS by the spreading tag in the same direction. The convenient FRR-GRR is confirmed to propose a very more variation of spreading vibration than the far FRR-GRR in the Dif-rf effort direction. Diffusing Recognition Function (Dif-rf) of flank (FL-α) condition is to be show a flash recognition rate-gap recognition rate (FRR-GRR) value for the Dif-rf-FL-α_{AVG}, Dif-rf-FL-$\alpha_{MAX\text{-}MED}$ and Dif-rf-FL-$\alpha_{MAX\text{-}AVG}$ (Fig. 5). Dif-rf effort of flank FRR-GRR is confirmed small diffusing at Dif-rf-FL-α_{AVG} and Dif-rf-FL-$\alpha_{MAX\text{-}MED}$ of the diffusing tag function on the FV direction in the DRFS. Whereas, differently the very small diffusing value of Dif-rf-FL-$\alpha_{MAX\text{-}AVG}$ is to the FV direction in the DRFS. Dif-rf effort of flank FRR-GRR is confirmed small diffusing at 1.95±0.25 unit with Dif-rf-FL-α_{AVG} of the diffusing tag function. In the flank FRR-GRR of Dif-rf effort is confirmed slightly little at 0.76±0.42 unit with Dif-rf-FL-$\alpha_{MAX\text{-}MED}$ on the FC direction in the DRFS. The excellently, this effort of the diffusing tag function in the flank FRR-GRR is to be show that a diffusing is happen the same direction in the DRFS. But, it is a excellently role in the diffusing effort of a flank vibration. In the diffusing of Dif-rf effort is confirmed small diffusing at 0.74±0.24 unit with Dif-rf-FL-$\alpha_{MAX\text{-}AVG}$. The spreading phenomenon of the flank FRR-GRR is induced excellently to alter the DRFS by the spreading tag in the same direction. The flank FRR-GRR is induced excellently to propose the DRFS by the spreading vibration at the Dif-rf effort.

Table 2. Average of the diffusing tag functions: the far FRR-GRR (Dif-rf-FA$\alpha_{MAX-MIN}$), convenient FRR-GRR (Dif-rf-CO$\alpha_{MAX-MIN}$), flank FRR-GRR (Dif-rf-FL$\alpha_{MAX-MIN}$) and vicinage FRR-GRR (Dif-rf-VI$\alpha_{MAX-MIN}$) condition. Average of Dif-rf-α_{MAX} and Dif-rf-α_{MIN}

Average α	FA $\alpha_{\text{Avg-FRR-GRR}}$	CO $\alpha_{\text{Avg-FRR-GRR}}$	FL $\alpha_{\text{Avg-FRR-GRR}}$	VI $\alpha_{\text{Avg-FRR-GRR}}$
Dif-rf-α_{MAX}	17.68±2.22	7.56±0.59	2.70±0.49	0.48±0.05
Dif-rf-α_{MIN}	6.84±0.41	4.41±0.24	1.23±0.19	0.24±0.03
Dif-rf-$\alpha_{MAX-MIN}$	10.85±1.81	3.14±0.35	1.47±0.29	0.24±0.02

Diffusing Recognition Function (Dif-rf) of vicinage (VI-α) condition is to be show a flash recognition rate-gap recognition rate (FRR-GRR) value for the Dif-rf-VI-α_{AVG}, Dif-rf-VI-$\alpha_{MAX-MED}$ and Dif-rf-VI-$\alpha_{MAX-AVG}$ (Fig. 5). Dif-rf effort of vicinage FRR-GRR is confirmed small diffusing at Dif-rf-VI-α_{AVG} and Dif-rf-VI-$\alpha_{MAX-MED}$ of the diffusing tag function on the FC direction in the DRFS. Whereas, differently the small diffusing value of Dif-rf-VI-$\alpha_{MAX-AVG}$ is to the normal direction in the DRFS. Dif-rf effort of vicinage FRR-GRR is confirmed very small diffusing at 0.36±0.04 unit with Dif-rf-VI-α_{AVG} of the diffusing tag function. In the vicinage FRR-GRR of Dif-rf effort is confirmed very little at 0.13±0.03 unit with Dif-rf-VI-$\alpha_{MAX-MED}$ on the FC direction in the DRFS. The excellently, this effort of the diffusing tag function in the vicinage FRR-GRR is to be show that a diffusing is happen the opposite direction in the DRFS. But, it is a excellently role in the diffusing effort of a vicinage vibration. In the diffusing of Dif-rf effort is confirmed very small diffusing at 0.12±0.01 unit with Dif-rf-VI-$\alpha_{MAX-AVG}$ on the FC direction in the DRFS. The spreading phenomenon of the vicinage FRR-GRR is induced excellently to alter the DRFS by the spreading tag in the normal direction. The vicinage FRR-GRR is induced slightly to propose the DRFS by the spreading vibration at the Dif-rf effort.

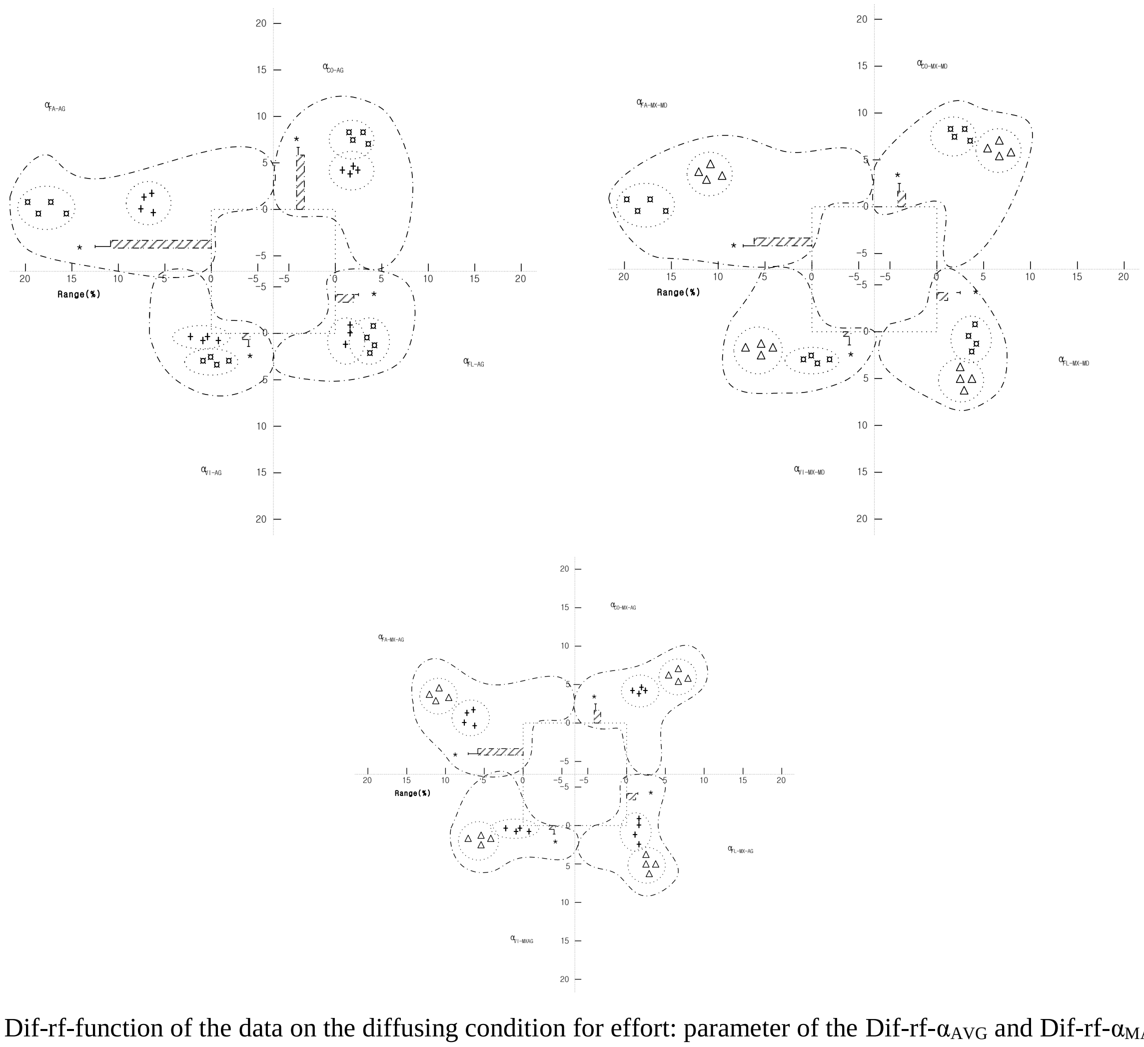

Figure 5. Dif-rf-function of the data on the diffusing condition for effort: parameter of the Dif-rf-α_{AVG} and Dif-rf-$\alpha_{MAX-MED}$ and Dif-rf-$\alpha_{MAX-AVG}$

CONCLUSION

In this paper was a position variation technology that was composed of the vibration recognition with the diffusing recognition function by the characteristic signal of recognition rate. This function was shown a value of the diffusing vibration function (DVF) by the recognition rate, to define a variation data from the basis reference by flash rate (FR) and gap rate GR). As to search a position of the natural burial, we were consisted of the diffusing value with master and slave point by the RFID-signal. Also, the spreading vibration was to assess the capacity of the vibration function, to with the control degree of recognition rate on the FRR-GRR that was shown the flash and gap function by the diffusing recognition rate system.

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