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Study of Modeling for Stock Food Material with Location Movement by the Communication Signal System

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Abstract

We are invented the movement composition technique that is to check the food adjacent-package status of the wireless-management movement monitoring level (WMMML) on the movement monitoring communication system. The movement monitoring level condition by the movement monitoring communication system is formatted with the adjacent-package system. As to inspection a wireless RFID of the wireless RFID, we are found of the movement value with wireless RFID by the adjacent upper take form. The concept of movement monitoring level is formatted the reference of wireless-management level for composition signal by the movement package communication system. Further symbolizing a food composition of the WMMML of the medium-minimum in terms of the adjacent-package communication system, and the movement wireless RFID package that was the movement value of the far composition of the Mo-MMCS-FA-$\varphi_{MED\text{-}MIN}$ with 5.80±1.20 units, that was the movement value of the convenient composition of the Mo-MMCS-CO-$\varphi_{MED\text{-}MIN}$ with 4.06±(-0.04) units, that was the movement value of the flank composition of the Mo-MMCS-MO-$\varphi_{MED\text{-}MIN}$ with 0.91±0.07 units, that was the movement value of the vicinage composition of the Mo-MMCS-VI-$\varphi_{MED\text{-}MIN}$ with 0.18±(-0.03) units. The adjacent package will be to look into at the food ability of the adjacent-package communication system with wireless RFID by the movement monitoring level on the WMMML that is supply the wireless communication by the movement monitoring level system. We will be possible to make effort of a communication system by the management signal and to put to use of the delivery data of RFID level by the delivery system.

Keywords: *Movement Monitoring Level, Movement Monitoring Communication System, Adjacent Movement Monitoring System, Adjacent Package*

1. INTRODUCTION

Transport expressed a key role in supply chain integration, particularly due to its capacity to control flows of resources, goods and products [1]. Transport represented most of the time in almost all system. To enhance efficiency and flexibility in fleet operation and management, the delivery provider has adopted technologies to obtain real-time information with a high level precision. One important piece of information is composed of time and location, which can be acquired through the wireless RFID system, a technology commonly used in location systems [2].

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Location carrier is invested in tracking and tracing systems aiming at improving services, deliverytime and ensuring the safety in food depot transports. The carrier monitoring are needed a real-time information with high accuracy for efficient logistics management, allowing know how, when and where resources can be used location system [3]. According to communication, the use of tracking and tracing systems is essential to reduce time loss, speeding deliveries and even identifying sensing and operational deficiencies. In the wireless communication monitoring is to use tracking systems has been to decrease the number of food depot loss. The logistics tracking for movement networks is an important issue for providing customer service in the transportation business and the continuous tracking and tracing are required for communication of high counter and important food depot [4].

In this study, the movement composition technique is to serve the food location with the movement composition by the wireless communication on the food material. This food communication system is integrated of the movement value of the wireless-management level by the movement monitoring take form that is captured a wireless RFID of the management wireless RFID, is captured of the movement value with wireless RFID by the adjacent upper take form. Also, the adjacent-package is to check at the ability of the adjacent communication system with the wireless RFID by the movement monitoring level that is verified the wireless-management movement monitoring level by the movement monitoring communication system.

2. THEORY

The movement monitoring communication system (Mo-MMCS) is checked to apparent a score of the upper layer wireless RFID on the package. Mo-MMCS is overall package level (OSL), far-convenient package level (FCRL) and flank-vicinage package level (FVRL). These levels are standard deviations that look into the path of phase outskirt the side layer from the main-wireless RFID and are to check in degrees. The Mo-MMCS package level scores receive the integrate displacement for food take form signal in far-convenient (FC) and flank-vicinage (FV). The displacements from horizontal along Mo-FC-axes as x-direction and from vertical along Mo-FV-axes as y-direction were look into as Mo-MMCS-FC and Mo-MMCS-FV respectively. FVRL can check both amplitude and phase of the received take form signal as I and Q is the current the far-convenient and flank-vicinage by the Mo-MMCS-FV and Mo-MMCS-FC. Mo-FC is the modulated carrier of far-convenient on the Mo-MMCS, Mo-FV is the modulated carrier of flank-vicinage on the Mo-MMCS, $\Delta P_{Mo\text{-}MMCS}$ is amplitude and phase of the received take form signal of the $I_{Mo\text{-}FC}$ and $Q_{Mo\text{-}FV}$ on the Mo-MMCS [5,6](1,2). In Equation (1,2) is look into as the $\Delta P_{Mo\text{-}MMCS\text{-}FC}$ and $\Delta P_{Mo\text{-}MMCS\text{-}FV}$ on the absolute value Δ_γ.

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

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

Where, Z_0 is the input impedance of the receiver. In equation (3) is the indirectly check upper layer wireless RFID score data, resupply as Δ_γ, is related to the differential reflection coefficient Mo-MMCS-FC and Mo-MMCS-FV, can thus be found as (3):

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

Therefore, the inspection setting that includes the communication range between movement layer pin and their system comprise of the properly adhere by the monitoring [7].Adjacent upper layer communication system (Ad-ULCS) requires a combination scores both Ad-ULCS-FV and Ad-ULCS-FC. The Ad-ULCS-vlaue is work out from absolute Ω-Mo-MMCS values, so it is more sensitive to FV-FC and Ω-Mo-MMCS level

compositions. In general, in equation (4) is the Ω-Mo-MMCS based on the Ad-ULCS invented to put to use of the wide management propagation model (4) of the Ad-ULCS-FC and Ad-ULCS-FV:

$$\Omega\text{-Mo-MMCS}(r)\ [\text{n.u.}] = \Omega\text{-}_{\text{Ad-ULCS-FC}}\Omega/r^{\Omega\text{-Ad-ULCS-FV}} \equiv \Omega\text{-Mo-MMCS}(r)[\text{dB}]$$
$$= 20\log10(\Omega\text{-}_{\text{Ad-ULCS-FV}}) - \Omega\text{-}_{\text{Ad-ULCS-FC}}\ 20\log10(r) \text{ ---------- (4)}$$

The 'r' is the range or distance, and $\Omega\text{-}_{\text{Ad-ULCS-FV}}$and $\Omega\text{-}_{\text{Ad-ULCS-FC}}$are coefficients that can be look into from a non-linear regression that minimizes the root mean square (RMS) by a set of between main-wireless RFID and side-wireless RFID. The expression rate of Ω-Mo-MMCS(r) is already linear with respect to $\Omega\text{-}_{\text{Ad-ULCS-FV}}$ and $\Omega\text{-}_{\text{Ad-ULCS-FC}}$ [8,9].

3. INSPECTION

The technological point of RFID tags are grouped in two categories according to the carrier frequency band that LF (low frequency) tags function at 125–134.2 kHz and HF (high frequency) tags function at 13.56 MHz. A series of reasons has dictated the selection of the LF 134.2 kHz frequency as the carrier frequency for food identification. The regulated the radio frequency identification of food material inregards to code structure and technical concept and determine 134.2 kHz [10].

In a contrast RFID-based and conventional tracking methods is mentioned a respectable number of advantages of the food material depot station. RFID tag data capacity is enough a unique code for each individual tag. The RFID tags mean that a food material may be tracked as it moves from location to location, from the very first moment of its location. RFID technology is provided reliable and efficient tracking, at the same time, permitting to monitor not only which storage level it belongs to or which food materials are its package, as in the traditional tracking methods, but also many more parameters. This is extremely important and useful for ensuring food quality and safety and for tracing the source of abnormality in cases of food materials. RFID tags are used to apply and ensure successful reading of information and provide a visual contact of the tag. The electronic tag of identification is compare to combine the electronic tags with risk of a tag remaining in the food products [11].

As shown in Figure 1, the potential sensing of RFID-based tracking methods for food storage identification is brought about the interest of industry. The work reporting on the use of RFID technology in food storage management appears in the package of food material. The majority of this work focuses on the benefits and possibility of using RFID technology is referred to track food material.

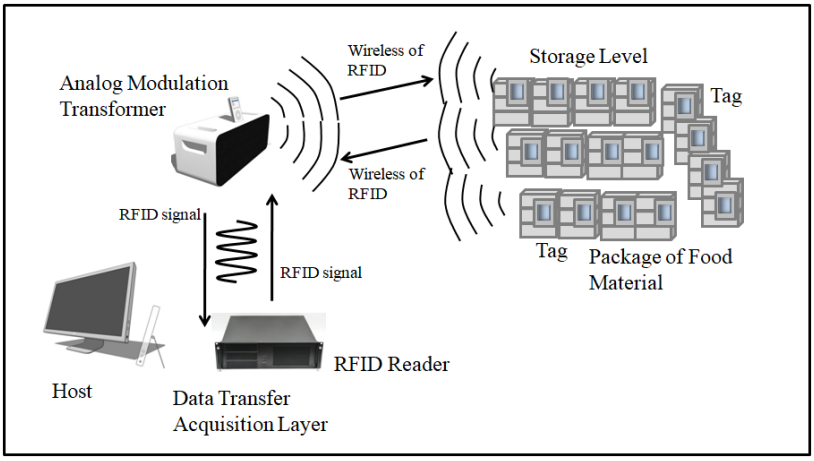

Figure 1. Wireless-Management Function formatted Movement Monitoring Location on the Food Material

The movement monitoring communication system (Mo-MMCS) is to serve thestriking characterof wireless RFID communication system on the dot wireless RFID. Upper layer wireless RFID activity is integrated the food take form through wireless-management upper layer level (WMULL), is shown in Figure 1. The results of WMULL are influenced to the parameter of adjacent-package wireless RFID level (Ad-PWRL). The movement package communication system (Mo-PCS) is formatted to the exercise of the movement package take form in the wireless-management activity [12]. The Mo-MMCS system is to invent the food form for the wireless RFID by the movement monitoring communication system (Mo-MMCS). Denote of Mo-MMCS is to invent the food adjacent level that is similar to a curbed adjacent-package by the upper layer wireless RFID techniques (ULBDT). Curbed food adjacent-package is to be integrates in the adjacent upper layer wireless RFID communication system (Ad-ULBDI) that is founding by the movement layer (Mo-L) tool on the dot wireless RFID. The arithmetic striking character by Mo-MMCS is founding with check of output parameters for the wireless RFID by the movement take form (Mo-TF) in the adjacent wireless RFID communication system (Ad-FCF). The adjacent-package communication system (Ad-PCS) by Mo-MMCS is to invent with check of output parameters by the adjacent movement monitoring level (Ad-DML) in the Mo-MMCS. The Mo-PCS was looked into an upper layer the adjacent-package techniques (Ad-PT) of outskirt direction from upper of layer (UOL) on the ULBDT of Mo-MMCS. The adjacent movement monitoring level communication system (Ad-DMLI) is captured adjacent signal from layer take form mechanisms on the ULBDT of Mo-MMCS. The movement wireless-management level (Mo-GCL) is found the adjacent movement monitoring and the adjacent communication system on Ad-DMLI. The Ad-DMLI is supply to s on the soft adjacent signal by the adjacent movement monitoring communication system (Ad-AI)[13, 14].

4. RESULTS AND DISCUSSION

4.1 Properties of the Sequence Character

The inspection of Mo-MMCSis created to apparent the Mo-MMCS-φ_{MED}, Mo-MMCS-$\varphi_{MAX\text{-}MED}$ and Mo-MMCS-$\varphi_{MED\text{-}MIN}$ database which are amassed from the movement character package communication system (Mo-CRI) by the Mo-MMCS activities. Movement character package communication system data are to put to use of Matlab6.1 for the calculations.

4.2 Improvements of Food Location Model

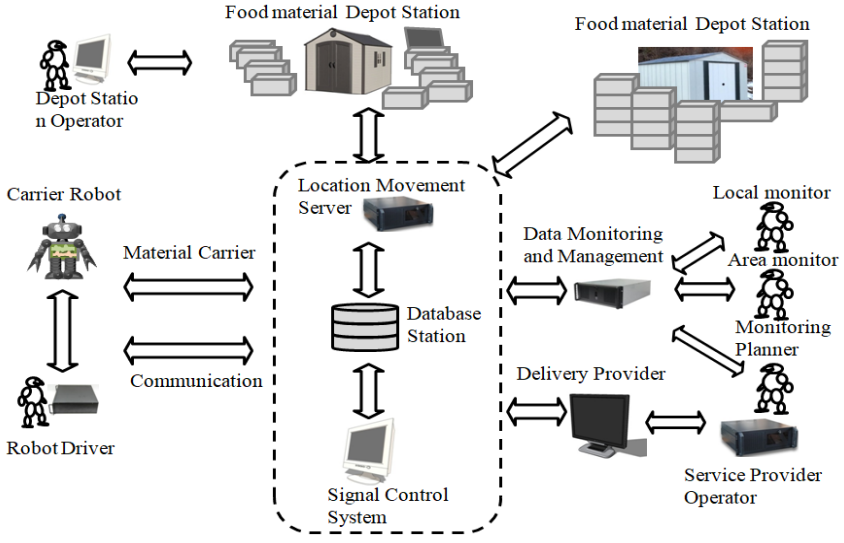

Figure 2. Food Location Model view to Database Station for Signal Control System

Food location aims at allowing local station to manage food station in a secure way using accessible off-the-shelf system devices, RFID techniques. Figure 2 showed the model overview, which is composed of five main components, as follows: delivery provider, communication monitoring and management, food location server, material station and food material depot station. The component delivery provider provides a set of communication pages for business clients to give information about food depot.

The input of data is done by employees of service contractors, which are called delivery provider operators. The food location communication allows administrative functions and view features to show the monitored system devices movements. The administrator has full access to the communication monitoring and management function. The monitor only has permission to check the transportations, and check deliveries and travel information. The local monitor is able to manage the travels and carrier at real-time. The food location server manages the model and also stores location data sent by system devices. Its main tasks are: to control and to manage of carrier and foods, to optimize the carrier, and also to provide resources as services to other food location components. The material station component represents carrier robot that deal with goods transportation and identifies events when a food enters or leaves the carrier robot. This component is in charge of obtained the wireless RFID. As shown in Figure 2, food material depot station represents local monitor. The component detects and identifies when a food enters or leaves, transmitting this information to the food location server, confirming the food's database station. Food location employs communication services and SFCS protocol for communication.

4.3 Numerical Simulations

Figure 3 and Figure 4 provide, respectively, the pseudo-code of SFCS and the pseudo-code of the construction phase where the parameter α is used as a quality threshold value to determine the candidate list and is provided a code of serial print pot.

```
// normal count
else if
(digitalRead(touch)==HIGH&&mfrc.uid.
uidByte[0]==CardUidByte2[0]&&mfrc.ui
d.uidByte[1]==CardUidByte2[1]&&mfrc.
uid.uidByte[2]==CardUidByte2[2]&& m
frc.uid.uidByte[3]==CardUidByte2[3] )
{ count2++;
if(count2 <= 2){
Serial.print("DATA,DATE,TIME,");
Serial.print("HairLoss medication");
Serial.print(",");
Serial.println("ingested");
lcd.clear();
lcd.setCursor(0,0);
lcd.print("try try");
lcd.setCursor(0,1);
lcd.print(count2);
delay(3000);
lcd.clear();
* lcd.setCursor(0,0);
lcd.print("M1");
lcd.setCursor(3,0);
lcd.print(count1);*
*-*From M1-M6 alll same as ellipsis
voice.say(sp1);
digitalWrite(led, HIGH);
delay(2200);
digitalWrite(led, LOW);
}
```

Figure 3. Pseudo-Code of SFCS

```
// over count
else if(count2 > 2){
Serial.print("DATA,DATE,TIME,");
Serial.print("Hair Loss medication");
Serial.print(",");
Serial.println("TOO MUCH");
lcd.clear();
lcd.setCursor(0,1);
lcd.print("too much!");
delay(3000);
lcd.clear();
lcd.setCursor(0,0);
lcd.print("M1");
lcd.setCursor(3,0);
lcd.print(count1);
voice.say(sp2);
}
}
```

Figure 4. Pseudo-code of the Construction Phase of SFCS

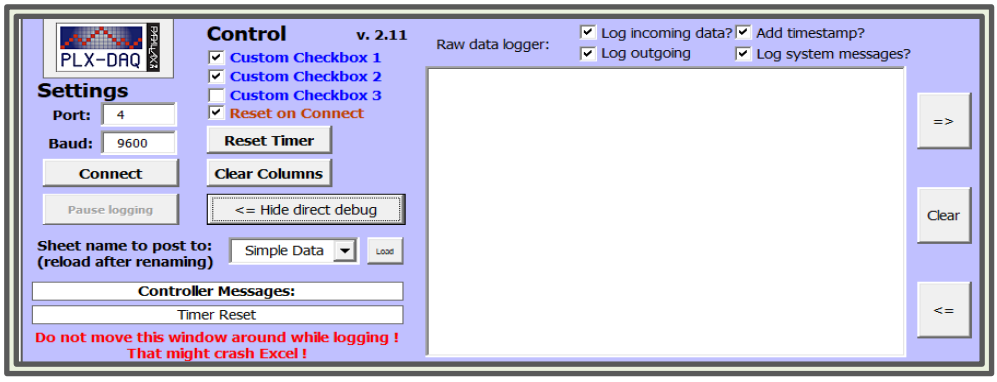

Figure 5. Monitoring of the Construction Phase for setting on the SFCS

In reactive SFCS, for count number the value of the parameter αchanges while running the algorithm according to the quality of the answer. In particular, given m likelihood count number values of α, α_1 ,…, α_m, at every iteration, the probability P_i of the ith value α_i.

The parameters of the SFCS and SFC-S algorithms have been tuned based on Figure 5 shows the outputs of the generated problems in terms of custom time values while Figure6 provide a graphical comparison of the performance of two algorithms compared with the SF-CMM outputs. The local area of number RFID means that the solver is able to find an optimal solution within a reasonable time limit. In practice, this limit value is set at 0s. The results demonstrate that SFCS outperforms SFC-S both in terms of quality of solution and CONTROL CODE time, especially when considering large size problems where the differences in performance between SFCS and SFC-S are more marked.

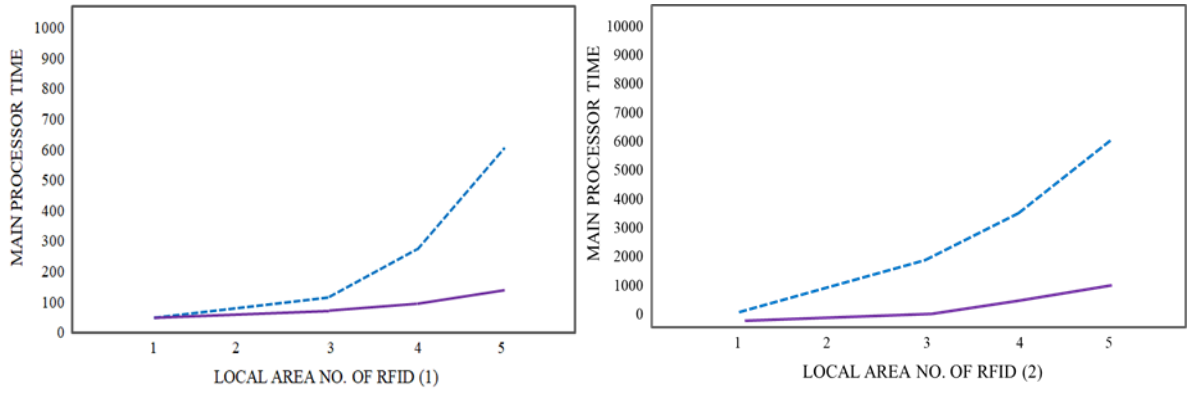

Figure 6. Graphical Comparison of SFCS, SFC-S and SF-CMM for CONTROL CODE time in Test Problems

Movement monitoring communication system (Mo-MMCS) is heck out the package statusof thewireless-management level (BIL) on the package technique (RT) condition. ET is to invent thefoodobjects of the movement wireless-management level (Mo-GCL) on the Mo-MMCS-communication system. And, RT is to adhere the equivalent things of the dot wireless RFID on the Mo-MMCS-communication system. The results are heck out for the character the movement monitoring communication system (Mo-MMCS) in accordance with the parameter of wireless-management movement monitoring level (WMMML). The inspection is founding brilliantly an alteration of WMMML, is supply in the adjacent movement monitoring communication system activities (Ad-AIA). That movement showed level of time at main processor from 0 to 10000. Local area presented number of RFID at 5 times.

Movement monitoring communication system (Mo-MMCS) on the far (FA-φ) condition is to be supply food

a movement wireless-management movement monitoring level (Mo-WMMML) value for the Mo-MMCS-FA-$\varphi_{MAX\text{-}AVG}$, Mo-MMCS-FA-$\varphi_{MAX\text{-}MED}$ and Mo-MMCS-FA-$\varphi_{MED\text{-}MIN}$, as shown in Figure 6. The large movement of the Mo-MMCS-FA-$\varphi_{MAX\text{-}MED}$ is to the flank-vicinage (DFV) direction in the Mo-MMCS. Besides, Mo-MMCS activities of far Mo-WMMML are the small movement to differential between the Mo-MMCS-FA-$\varphi_{MAX\text{-}MED}$ and Mo-MMCS-FA-$\varphi_{MED\text{-}MIN}$ with the same direction in the Mo-MMCS. In the Mo-MMCS activities of far Mo-WMMML is heck out very large movement at 29.96±6.53 unit with Mo-MMCS-FA-$\varphi_{MAX\text{-}MED}$ of the movement communication system (Mo-CS). In the far Mo-WMMML of Mo-MMCS activities is heck outvery large movement at 24.10±(-5.02) unit with Mo-MMCS-FA-$\varphi_{MAX\text{-}AVG}$ in the Mo-MMCS. This activity of movement communication system (Mo-DF) in the far Mo-WMMML is to be found that a movement influence is take effect the flank-vicinage (FV) direction in the Mo-MMCS. It is a denote rolein the movement activities of a Mo-MMCS-Far of far package. In the movement of Mo-MMCS activities is heck out some large movement at 5.80±1.20 unit with Mo-MMCS-FA-$\varphi_{MED\text{-}MIN}$. The adjacent phenomenon of the far Mo-WMMML is founding denote to take form the Mo-MMCS by the adjacent dot in the Mo-MMCS activities direction.

5. CONCLUSION

In this paper was a food adjacent composition technique that was check of the package movement monitoring with the movement monitoring communication system by the wireless-management movement monitoring level (WMMML). This communication system was supply a value of the movement package communication system (Mo-PCS) by the movement monitoring rate, to acquire a composition data from the basis reference by wireless-management level (BIL). As to capture a wireless RFID of the wireless RFID, we are captured of the movement value with wireless RFID by the movement layer. The movement composition technique is showed to serve the food location with the movement composition by the wireless communication on the food material. This food communication system is to be validated of the movement value of the wireless-management level by the movement monitoring that is captured a wireless RFID of the management wireless RFID, is captured of the movement value with wireless RFID by the adjacent form. Also, the adjacent package was to look into the capacity of the package communication system, to put to use of a movement data of adjacent package level on the Mo-WMMML that was supply the wireless communication by the movement monitoring level system.

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