

## ***AURORA Technologies Ltd.***

P.O. Box 388, Tirat Carmel 30200, Israel  
Tel.: (972) 4-8576982, FAX: (972) 4-8576983  
e-mail: info@aurora.co.il

# **THE SMART MEAL VOUCHER (SMV) SYSTEM**

---

## **1. INTRODUCTION**

---

Meal vouchers (tickets) are commonly used as a means of payment for meals by working personnel during their working hours. In many cases, companies issue meal vouchers or coupons to their employees as an inherent part of the employee's benefit package. The vouchers are frequently subsidised in part by the employer. The employee is charged for his part of the cost of the meal, and the cost is deducted directly out of his pay check.

The meal vouchers are accepted by local restaurants and cafeterias. Their benefit is a regular and formal agreement with the companies, providing a constant and dependable client base. They also benefit from an improved ability to plan inventory and work-load logistics. To this end, they offer reduced prices as part of the agreement with the companies.

The use of meal vouchers is very advantageous and attractive to the employees. They benefit from access to a diverse set of food providers and menus, reduced cost of meals and deferment of payment of their meals to the end of the month.

There are several disadvantages to the implementation of meal voucher schemes based on the pre-printed paper tickets commonly used today. These include:

- ◆ The real and great risk of ticket counterfeiting and duplication.
- ◆ The risk of fraud and misuse of the tickets.
- ◆ The cost of printing the tickets, securely transporting them to the companies and storing them securely within the companies until they are distributed to the employees.
- ◆ The horrendous logistics involved in issuing the tickets, collecting used tickets from the restaurants, storing them, counting them, paying the restaurants, tracking and monitoring the money distribution from the companies to the food providers and retaining records (at the food provider level and the company level) of tickets issued and used.
- ◆ Once issued to the employees, the tickets represent company debt. This implies constant monitoring of the tickets issued versus tickets redeemed to monitor the company debt for bookkeeping purposes.
- ◆ Losing a ticket or book of tickets amounts to direct loss of money.

---

## **2. THE SMART MEAL VOUCHER (SMV) SOLUTION**

---

The Smart Meal Voucher (SMV) System is a cooperative venture that links food outlets (restaurants, cafeterias, etc.), companies (in particular small and medium sized firms) and their employees. The system replaces the paper coupons and tickets, currently used, with new, high-tech and computerized technologies that resolve all of the deficiencies of the existing schemes. In addition, the SMV system offers considerably enhanced features and flexibilities unachievable within the existing frameworks.

The SMV system is based on a common need of:

- ◆ Employers to provide accessible and affordable meals to their employees during working hours.
- ◆ Local food providers to have a regular and loyal base of customers.
- ◆ Employees to have local, diverse and affordable access to meals during working hours.
- ◆ The common need of all to reduce overhead and logistics, increase control and accountability and prevent fraud.

### **2.1 SMV System Elements**

The SMV system is based on smart card technology. The SMV solution is based on a personal smart card that is issued to each employee of the firms that subscribe to the system. The card will contain the name and personal details of the employee, as well as any other additional relevant information (including, in particular, the company code and privileges assigned to him).

The main elements in the SMV system are:

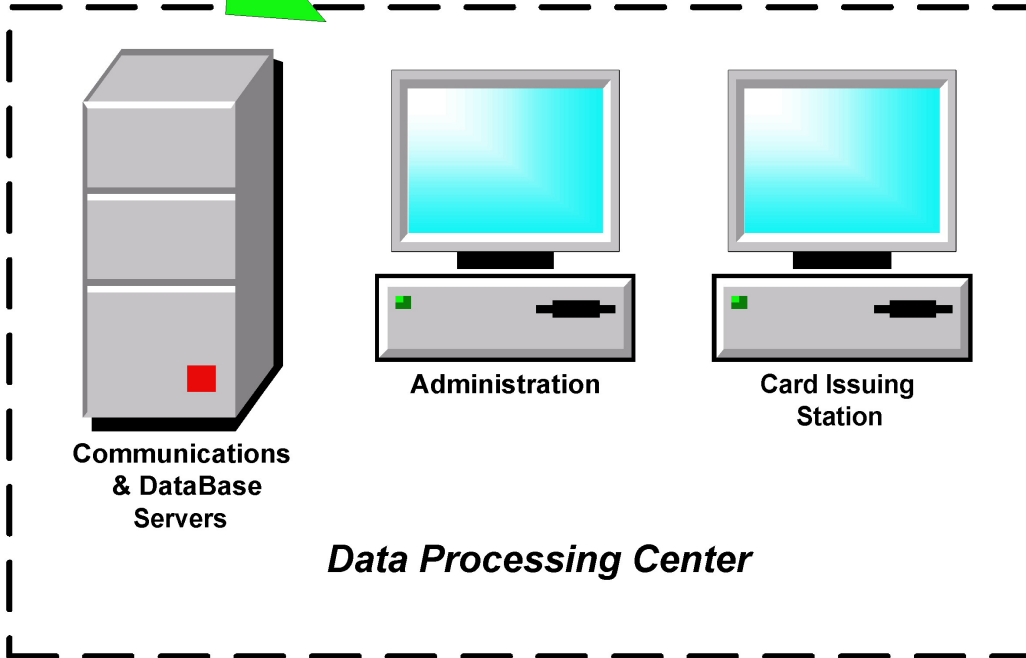
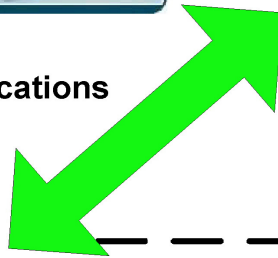
- ◆ The Data Processing Center. The Center includes
  - A computerized Clearing House.
  - Computer terminals for administration and reports.
  - A Smart Card Issuing and Personalization Station.
- ◆ Smart card terminals, distributed and installed on the premises of the food outlets and (optionally) in the offices of the participating companies.
- ◆ Personal Smart Cards, issued by the SMV operator to the employees through their companies.

In a typical system implementation, the companies and the food outlets will have negotiated a pricing system. The SMV system is very flexible and can accommodate individual price agreements between any firm and any food outlet. The system operator can be an active partner in the price negotiations, or not.

**Food Outlets:  
Restaurants, Cafeterias, ....**



**Communications**



The SMV System currently implements off-line communications. Optionally, it may easily be converted to an on-line system, as described below.

---

### **3. OFF-LINE SMV SYSTEM DESCRIPTION**

---

In the Off-Line SMV configuration, the processing of the employee privileges and limitations will be implemented by the terminal. This processing will be based on the privileges and rules downloaded from the Data Processing Center to the terminal, as well as privileges and balances located on the individual personal employee card.

As each company joins the SMV system, all of its employees will be issued personal smart cards. The employee card will, thereafter, retain the privileges of the employee in any of the food outlets participating in the scheme. An employee can have one or more purses available to him. The purses can be either in monetary value or the equivalent of food coupons or fixed price vouchers.

The company will (as an option) be issued one or more terminals. These terminals will be used for support and endorsement of food deliveries to the employees on the company premises. On the company terminal, an employee can browse through the list of participating food outlets, and perform a transaction involving food delivery.

As each food outlet subscribes to the SMV system, it will be issued a terminal. It will also be automatically added to the list of food outlets available on the terminals of the companies with whom it has negotiated a contract.

#### **3.1 SMV System Operation**

An employee will present his card at the food outlet. If the employee is associated with a company that has contracted with the restaurant, a transaction can take place. The transaction will take place depending on several conditions. These may include:

- ◆ Whether the employee's balance is positive.
- ◆ Whether he has already exhausted his privileges for the day or meal.
- ◆ If the transaction meets the time constraints allowed by the company (allowed day in week and time of day).

Additional criteria are described in sect. 3.2 below.

The debit will be in accordance with the purse applied and operated within the food outlet: money or coupon.

As part of the transaction, the card will be debited and the transaction will be registered in the terminal. All of the stored transactions of all of the terminals will be communicated, during the daily or manually initiated communication session, to the Data Processing Center.

A transaction can be canceled through use of a Supervisor card, available to the manager of each food outlet. Cancellation can only take place prior to the transaction

having been transmitted to the Data Processing Center, on the same terminal as the transaction took place and within a preset time period (for example, one hour).

The Data Processing Center will process all of the transactions, and provide status reports on a detailed or summarized basis for each company on a per-employee basis, and for each food outlet. Thus, the company will be able to charge the employees individually for meals actually taken. The company will be invoiced for the meals of its employees, and the outlets will be paid accordingly. Thus, the companies will not have to deal individually with each of the food providers they have an agreement with, and the food providers will not have to monitor payment individually from all of the companies.

At the end of the month, detailed reports are issued by the Data Processing Center to the companies and to the food outlets and, if necessary, to the employees (through their company). The company report will contain a breakdown of the number of meals taken by each employee, a total summary of meals and expenditures and, optionally, a list of the distribution and costs per food outlet of the meals partaken by the company's employees. The food outlet report will contain a summary of meals taken per day. Optionally, a summary list of meals per company can also be issued.

Each terminal initiates a communications session with the Data Processing Center at least once a day. In addition, the manager of the food outlet can manually initiate a communications session at any time he wishes. Following each successful transaction transmission session, the terminal will print a summary of tickets and money transactions associated with that transmission. The transactions will then be erased from the terminal.

Each company decides when it wishes to recharge the employee personal cards with additional value (coupons or monetary). The company informs the operator what the recharge value will be for each purse supported by the company employee cards. At the designated date (or at a later date), the recharge value will take effect. The purse conditions can be such that the recharge value is added to the current balance (subject to a balance ceiling), or that the balance is updated to equal the recharge value (in case accumulation is not allowed by the company). The recharging is performed only once per card.

When a card is lost, or when an employee leaves his employer, the employee card is placed in a Black List. This list is transmitted, as part of the daily communications session, to all of the terminals that support that company. If a card that is in the Black List is presented to a food outlet, the card itself will be disabled (at the card level). Its ID number will thereafter be transmitted, as part of the daily communications session, to the Data Processing Center, where it will be removed from the Black List.

At the end of the month, detailed reports are issued by the Data Processing Center to the companies and the food outlets and, if necessary, to the employees (through their company). The company report will contain a breakdown of the number of meals taken by each employee, a total summary of meals and expenditures and, optionally, a list of the distribution and costs per food outlet of the meals partaken by the

company's employees. The food outlet report will contain a summary of meals taken per day. Optionally, a summary list of meals per company can also be issued.

### 3.2 Employee Card Privileges and Limitations

The employee privileges and limitations are located both in the terminal (reflecting the company-wide characteristics) and on the personal card. These parameters are implemented by switches and values, as follows:

Status Switches:

- 3.2.1 **Priority from Terminal** – when set, the various parameters and switches are derived from the terminal, rather than from the personal card. This is usually the case when the personal privileges and limitations are determined at the company, rather than at the individual level. When this switch is reset, the parameters are determined by the card, and not from the terminal.
- 3.2.2 **Automatic Renewal** – If this switch is reset, then the card is not rechargeable through the terminal (i.e. the card needs to be returned for recycling).
- 3.2.3 **Transfer Balance** – When set, then during a recharge the current balance is added to the recharged value (subject to the Max Value parameter). When reset, recharging erases the current balance and replaces it with the recharge value.
- 3.2.4 **Limit to Transaction Ceiling** – When set, the transaction is limited to the Transaction Ceiling value. This represents the daily quota. If not set, the amount to be debited is not limited.
- 3.2.5 **Limit to Transaction per Day** – When set, the employee may only use up to the daily quota of meals (or value) per day. When reset, the employee may eat several times a day. If the Limit to Transaction Ceiling is set, then the employee is limited to that ceiling at each meal.

Value parameters:

- 3.2.6 **Max Value** – Maximum value allowed in the purse.
- 3.2.7 **Transaction Ceiling** – The maximum value of a single transaction. Applicable when the Limit to Transaction Ceiling switch is set.
- 3.2.8 **Day in Week** – Defines the days of the week (Sunday through Saturday) at which the card is accepted. This, for example, enables a company to disallow using the card on weekends.
- 3.2.9 **Time of Day** – Defines the hours of the day in which the card may be used. For example, some employers want to allow use of the card only during lunch hours.

---

## **4. ON-LINE SMV SYSTEM DESCRIPTION**

---

The On-Line SMV configuration is currently an option, applicable only in environments that require and support a communication transmission occurring with each transaction.

In the On-Line SMV configuration, the processing of the employee privileges and limitations will be carried out by the Data Processing Center. This processing will be based on the privileges and rules associated, within the Data Processing Center, with each employee.

In this configuration also, each employee is issued a personal smart card. Although magnetic cards are adequate for personal identification, use of a smart card eliminates duplication of cards and reduces fraud considerably.

The On-Line configuration offers considerable more flexibility in applying and in operating the system. In order to reduce the volume of communications, it is recommended that each terminal still receive a list of the companies served at that particular food outlet. Thus, a card that is not served at an outlet (or that is disabled) will be rejected by the terminal, and a communication session will not be initiated.

It may also be advisable to retain the current balance of the employee on his card, in addition to its existence in the database. This will allow reading the balance on personal computers and equipment that is not necessarily connected to the Data Processing Center.

There is one main disadvantage to the On-Line configuration. That is the total dependency on a communication link between the food outlet and the central office. If this link is unreliable or fails, the food outlet will not be able to provide or serve its customers until communications are resumed.

---

## **5. SMV SYSTEM FEATURES**

---

- 5.1 Support equivalents of coupons, money or both.
- 5.2 Each company specifies the nature and characteristics of the privileges and restrictions associated with use of the tickets by its employees.
- 5.3 Includes both company supported ticketing as well as private use.
- 5.4 The system obviates the need for printing, storing and distribution of paper tickets and coupons. This results in a lower operation cost for all of the parties involved.
- 5.5 It eliminates the need to collect used tickets from the food outlets, to count them and to reconcile the manual crediting of outlets and debiting of the companies. This considerably reduces administrative overhead.
- 5.6 All parties are issued detailed reports on an agreed, periodic, basis.

- 5.7 The system does away with scenarios of ticket theft, ticket counterfeiting and any other fraud.
- 5.8 Built-in provisions for situations involving loss of the personal card, employee work termination, addition of new companies, new employees and new food outlets to the scheme.
- 5.9 Meal prices as well as company level privileges are updated daily and automatically.
- 5.10 The system incorporates sophisticated security measures to prevent fraud and duplication of the system resources.
- 5.11 New features, privileges and limitations are easily added to the system repertoire. The system is easy to operate at both outlet and central office levels.
- 5.12 The SMV system allows administrative monitoring, and, therefore, optimising, the performance and workload of the food outlets.
- 5.13 The SMV system allows the companies to enforce tighter control over the employee meal hours, use of the meal tickets during and out of work hours and to eliminate abuse of the meal tickets (inviting friends at the company expense, etc.).
- 5.14 The SMV system is easily expanded to include additional electronic purchase capabilities, allowing integration of other purchasing transactions to be added to the system disciplines.

**For additional information, please contact:**

**Dr. Ron Gal-Ezer  
Managing Director  
Aurora Technologies Ltd.**

**e-mail: [rongal@aurora.co.il](mailto:rongal@aurora.co.il)  
Tel.: +972-4-8577055  
Cell.: +972-52-2996594**