

THE ACCESS SYSTEM TO THE INSTITUTIONAL RESTAURANT OF FEDERAL INSTITUTE OF PIAUI – FLORIANO *CAMPUS*

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INTRODUCTION

This paper³ aims to report on the experience of the Institutional Restaurant Access System (in Portuguese, *Sistema de Acesso ao Restaurante Institucional* - SARI) of the Federal Institute of Education, Science and Technology of Piauí (in Portuguese *Instituto Federal de Educação, Ciência e Tecnologia do Piauí* (IFPI) – *Campus* Floriano, implemented in 2015, running to this day. The paper was split into five parts, as we will present next.

In the first topic, we contextualized the Floriano *Campus* in its 25 years, narrating a brief part of its history. We then moved forward to highlight IFPI's chronicle, its many transformations that occurred along its almost 110 years, and the difficulties faced in the beginning of the establishment of the Decentralized Schooling Unit (in Portuguese, *Unidade de Ensino Descentralizada (UNED)* - Floriano, specially the issue of hiring public servants. We also presented an updated picture of the Institution and its internal community.

The following topic was dedicated to the Institutional Restaurant, with the description of the architecture project, its strategic location inside *Campus* building, as well as the diverse changes that occurred in its 25 years of establishment. We reported how is the state of the restaurant today and presented some of its operational challenges. We further discussed the implementation of the Student's Support Policy (in Portuguese, *Política*

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de Assistência Estudantil (POLAE) in 2014 and its immediate challenges. Furthermore, we compared the number of meals served before and after the implementation of POLAE and SARI.

We dedicated the third topic to the SARI itself, as we presented the system, some of its interfaces and functioning. We emphasized its main functionalities and updates since the system started running.

We concluded the paper considering the main benefits of the system's development and implementation for the Floriano *Campus'* employees and the main users of the system, the students. Plus, we pointed out some reflexions on the improvements of the use of SARI.

THE FLORIANO *CAMPUS*

The Federal Institute of Education, Science and Technology of Piauí, or simply the Federal Institute of Piauí (IFPI), is a federal autarchy vinculated to the Brazilian Department of Education (MEC), under the Bureau of Technological and Professional Education (SETEC). The Institute was created in December 2008 from the earlier Federal Center of Technological Education of Piauí (CEFET-PI), which was also created from the even older Federal Technical School (ETFPI).

Therefore, the history of the Federal Institute has begun last century, as follows:

- Created in 1909 by former president Nilo Peçanha, named School of Craftsman Apprentices (*Escola de Aprendizizes Artífices*, in Portuguese), located in Teresina, initially established on the Pirajá district.
- Later transferred to an old manor on Pedro II square, then renamed Industrial Lyceum of Teresina in 1934. It was later renamed Industrial School of Teresina in 1942.
- In 1938, a new headquarters for the school was built on Liberdade square, which is still used and expanded to this day. In 1966, the school was renamed Industrial Federal School.
- In 1967, the school started offering high school and technical education, then named Technical Federal School of Piauí.
- In 1994, the transformation in CEFET-PI was authorized by the federal government, by the Law nº 8.948 in December 08 1994, in its 3rd article "The current Federal Technical Schools, created

by the Law nº 3.552, in February 16, 1959 and by the Law nº 8.670 in June 30, de 1983, are now transformed in Federal Centers of Technological Education” (BRASIL, 1994), which became effective in March 22, 1999, with the signature of the presidential decree by the then-President Fernando Henrique Cardoso.

- In the end of 2008 the Federal Center of Technological Education of Piauí was transformed in the Federal Institute of Education, Science and Technology of Piauí, by the Law nº 11.892 in December 29, 2008, subsection XXIV (BRASIL, 2008), formed by the *Campi* of Teresina Central, Teresina Zona Sul, Floriano, Picos, Parnaíba, Angical do Piauí, Uruçuí, Corrente, Paulistana, São Raimundo Nonato and Piripiri.
- Today the IFPI is formed of 20 Campi. Including the ones already mentioned, we have the *Campi* Cocal, Pedro II, Oeiras, Valença, Campo Maior, São João do Piauí, Pio IX, José de Freitas and Dirceu.

The Technical Education Improvement Program (PROTEC), in 1994, funded the construction of the Decentralized School Unit (UNED-Floriano) which was, at the time, an extension of CEFET-PI in Floriano, with large facilities and properly projected to offer the best technological education. However, the project of bringing the Technical Education to the rest of the state inland began in 1987, during the administration of the professor Castelo, then Director of the ETFPI. As quoted by the scholar Antônio Gerardo Rodrigues in the book “Centro Federal de Educação Tecnológica do Piauí”:

Piauí, one of the favored states, got one more school to be implemented inland in the state, and the Federal Technical School was trusted with the destiny of the new institution. The former Director, Prof. José Ferreira Castelo Branco, who managed the Technical School between 1975 to 1994, established as a priority of his administration from 1987 on the construction and implementation of the new school later called UNED (Unidade de Ensino Descentralizada). So, the fulfilment of a great dream had started: the birth of the new school and taking the Technical Education to rest of the state. (Rodrigues, 2002, p. 143).

Still quoting Rodrigues (2002), the UNED Floriano was opened in June 30, 1994, at the end of the term of the Director General Professor José Ferreira Castelo Branco. The operation of the unit was authorized by the Minister of

Sports and Education Murílio de Avellar Hingel, by the Ordinance nº 934, in June 16, 1994, being officially opened in August 16, 1994 by the same Minister and by the recently-appointed Director General, the professor Rita Martins de Cássia.

The UNED - Floriano began activities offering pre-technical courses, that prepared students of the region to the enrollment in technical high school courses, with the collaboration of teachers of other institutions, because no teachers were hired by the Federal Government. Students from the last year of primary school were prepared to enroll in the Federal Technical School of Piauí (ETFPI), later denominated Federal Center of Technological Education (CEFET – Piauí).

The first steps were difficult, once the authorities tried to avoid that the School structure remained inactive, and could comply with the institutional mission to the community of young students that already awaited eagerly to have the pleasure to study in that wonderful structure; the proposal was made to School Headquarters in order to function full-time (November/94 to February/95) the first Pre-Technical course, preparing the primary school graduates of private and public schools from Floriano and neighboring cities, interested in enrolling to one of the Technical Courses of UNED in 1995. (RODRIGUES, 2002, p.146).

The Technical Courses offered by UNED – Floriano, Civil Construction and Electromechanics, presented an enduring difficulty – the lack of professional teachers to teach the subjects, considering the policies adopted by the then-President Fernando Henrique Cardoso, by the Decree nº 1368/95, discontinuing the employment of new public servants and the appointment to new offices. In order to evade this problem, the UNED administration looked for partnerships with public and private institutions of Floriano that allowed their teachers to work at UNED, according to Rodrigues (2002).

In the second semester of 1995, the first twenty teachers were hired by the federal government to the UNED - Floriano, the result of the public admission tests were ratified in December, 1995, and appointment took place in January 17, 1996.

With the transformation of CEFET-PI in IFPI, the Floriano UNED obtains the denomination of *campus*, which today is an educational center, offering quality education to students from almost fifty municipalities in Brazilian Northeast.

The IFPI Floriano *Campus*, currently located in an area of more than 92.000 m², offers technical high school courses, professional formation, college degrees in Technology and Teaching of Sciences - in educational principles of Infrastructure, Industrial Processes and Control, Information and Communication, Environment and Health; plus a nation-wide master degree in Mathematics.

The courses offered are the following:

- Technical High School in Civil Construction.
- Technical High School in Electromecanics.
- Technical High School in Computing.
- Technical High School Environmental Management.
- Professional Education in Civil Construction.
- Professional Education in Electromecanics.
- Professional Education in Computing.
- Information Technology and Development graduation.
- Science Teaching in Biology.
- Mathematics Teaching .
- National master degree in Mathematics.

Today, the Floriano *Campus* has approximately 1200 students, 80 teachers and 63 administrative staff, plus 42 third-party employees in cleaning services, installation maintenance, professional driving, surveillance and kitchen services.



Picture 1: bird's eye view of IFPI - *Campus Floriano*

Source: Multimedia coordination department archives of Floriano *Campus*

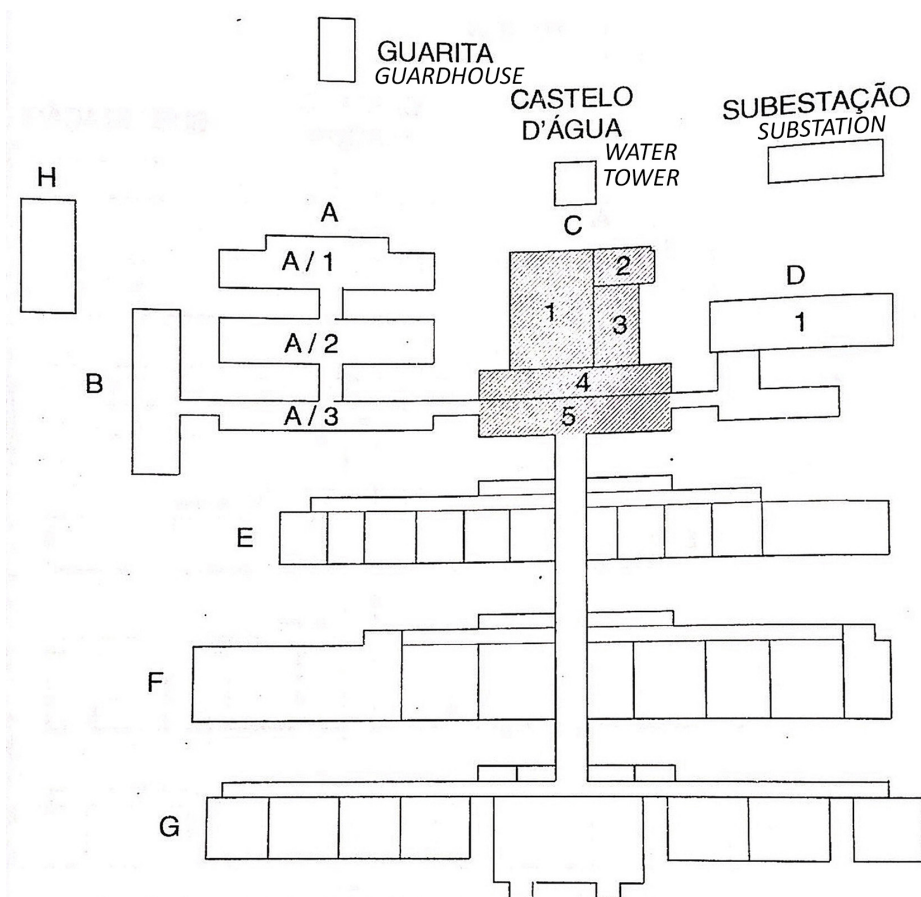
THE INSTITUTIONAL RESTAURANT

The Institutional Restaurant or simply Food Court (*Refeitório*), named according to the original project of the *Campus*, is strategically located in Block C, in a central position inside the original building, between the Block A, administration and the Block D, Teaching, and it is also close to the classrooms and laboratories, according to Rodrigues,

I personally call it Block “C”, the Convention Center of the UNED. Here we can find the Auditorium (1), the Kitchen (2), the Food Court (3), the Cantina (4) and the Lobby (5), janitor areas, pantry, and also male and female restrooms. Here all sorts of meetings, conclaves, seminars and courses can be carried out without interfering on the daily activities of the school..

(...)

The kitchen is semi-industrial, and the food court has 100 seats. The total area of the block is 655,30 m². (Rodrigues, 1995, p. 40).



Picture 2: Building Plant of the original UNED Floriano project, with the Block C emphasized. Rodrigues (1995, p.40)

Although the UNED was established in 1994, the Institutional Restaurant started functioning only in 1996, during the administration of the first principal of UNED, the professor Maria de Jesus Silva Santana, serving a single lunch meal. At the time, students paid a very small fee for a ticket, and no more than one meal was allowed per user. In 2008, the dinner meal was implemented, during the professor Darley Fiárcio's administration, in order to assist students who worked at night and studied in evening courses.

Until 2010, there was nutritionist on *Campus*, the meals were supervised by Headquarters nutritionist, today the Teresina Central *Campus*, Regilda Barbosa de Araújo Borges. However, in July 2010, the nutritionist Marina Vasconcelos Almeida Lima was hired by the federal

government after passing through the public admission tests for the place, and she now runs the Institutional Restaurant José Ferreira Castelo Branco, of Floriano *Campus*.

The Institutional Restaurant always had the student community as first priority (93,4% of the demand of the IR in 2018), which is mainly constituted of low income adolescents and/or from neighboring towns, those of whom, mostly, have their daily meals at school. The other student profiles, also very common among the other users of the restaurant, are students who work during the day and go straight to *Campus* from their jobs to class.

Thus, the Restaurant offers a crucial part of the daily calories and nutrients necessary to this public, so they are able to carry on with their day-to-day activities, and, indirectly, it also contributes to the access, stability and academic success of these students. The Restaurant also stimulates good eating habits that may be extended to the family, promoting the wellbeing and health of this community, which vindicates the enormous relevance of the Restaurant in an institution like the IFPI - Floriano *Campus*.

In 2012, a renovation of the IR was essential to the continuity of its operation on Floriano *Campus*, given precarious situation of the sector. The main issues appreciated in this renovation, during the planning, had an important contribution of the nutritionist, once she is the professional that experiences the routine of the sector, as follows;

- *Layout* modification: Sectorization of the diverse stages involved in the preparation of meals, in order to avoid contamination and produce safe food. Construction of food and utensil pantries, as well storages for cleaning supplies;
- Construction of the Nutritionist office inside the IR, once the presence of the professional is essential in all the stages of production and distribution of the meals;
- Modification of the overall physical structure (floors, walls, lights, ventilation, sinks, benches) like the standard literature on the subject demands;
- Purchasing of modern utensils and equipment necessary to answer the new demand of the sector;
- Once all the renovations were finished, the staff was updated to the new demand, resulting in an increase from 4 to 13 employees, which consisted of cooks and auxiliaries.



Picture 3: Snapshots of the Institutional Restaurant of Floriano Campus

Source: Archives from Floriano Campus

In addition to these local interventions on *campus* itself whose goal is to ensure the stability and the academic success of students, in 2014 the Superior Council of IFPI passed the Resolution N° 014/2014 – Conselho Superior, which implemented The Student Assistance Policy (in Portuguese, *Política de Assistência Estudantil* - POLAE) of IFPI, a series of directives and principles concerning the implementation of programs aimed to ensure the access, stability and academic success in social inclusion approach, enhanced academic formation, production of knowledge and improvement in academic performance.

According to Article 7° of the Resolution N° 014/2014 – Conselho Superior, The Student Nutrition aims to provide students with the opportunity to meet their basic nutritional needs, free of charge by using the food court. Quote (BRASIL, 2014):

Art. 7º Student Nutrition: aims to provide students with the opportunity to meet their basic nutrition needs, free of charge by using the food court, thus the law proposes:

I - ensure the supply of balanced and healthy diet to the student community, with the supervision of a Nutritionist, helping the stability of students on campi;

II- develop activities aiming to promote the nutritional health of students and the development of healthy food habits;

Paragraph – The practices concerning the operation of the food courts on campi will be supervised by a Nutritionist, whose responsibility is to inform annually the expenses and results of the maintenance of the food courts.

The Institutional Restaurant (IR) of IFPI Floriano *Campus* has an area divided into kitchen, food court and the Nutritionist office. Currently, the employee staff consists of a Nutritionist and thirteen outsourced employees, among cooks and auxiliaries and it serves demand of 600 meals, divided between lunch (400) and dinner (200).

As mentioned above by POLAE, the Institutional Restaurant has a strict social function to meet the nutritional demands of *campus* community, serving meals (lunch and dinner) that meet recommended nutritional standards with diverse, balanced, quality and sufficient food, and safe in sanitary standards.

One of the main challenges today is the insufficient technical staff to meet the sector demands. Because of this, complementary activities were still not carried out, like interventions in nutritional education, food waste, among other themes of equal relevance, once there is a lack of requirements and availability for elaborating and developing activities to the public of the Restaurant, because besides the difficulties in increasing the staff and hiring more outsourced employees, these limitations may in the future jeopardize the expansion of the courses and the number of student on *campus*. The construction of a new installation, therefore, may be needed.

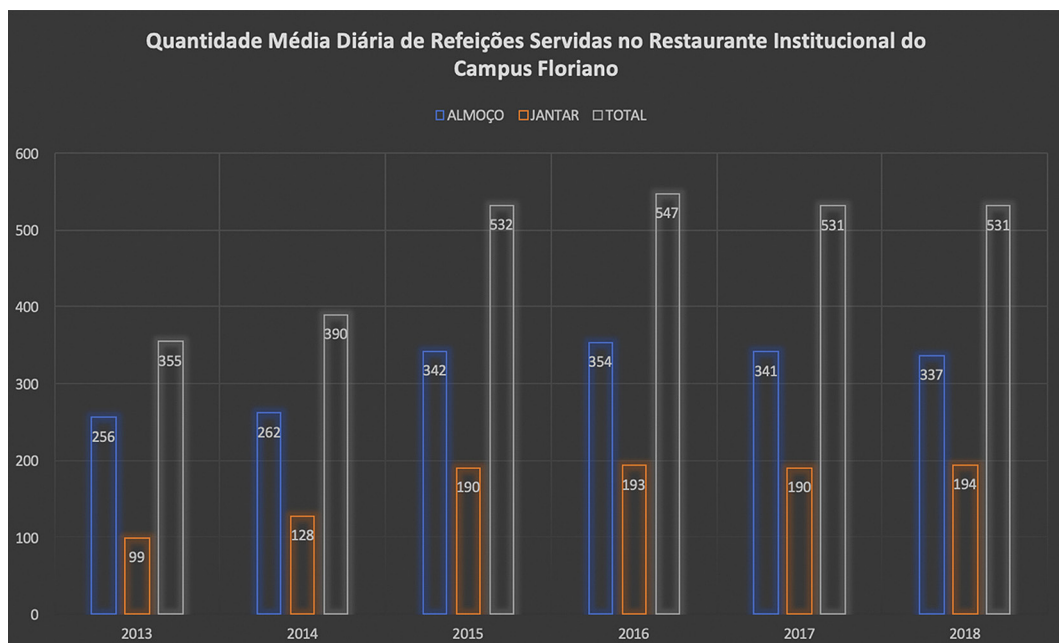
Another common challenge in Restaurant management is the difficulty to hire firms for preventive and/or corrective maintenance of the equipments and physical structure of the Restaurant, once it is installed an industrial kitchen in it with many different and essential equipments, so any inconvenience compromises planning and complicates the final production. Moreover, due to the intense routine and flow of users, the building structure (floors, painting, insulation, etc), must also be checked periodically, once these are issues that contribute to the safety of meals.

Until 2014, the students had to pay a very small fee to get a paper ticket printed and handled by and specific employee in order to use the IR services. However, with the implementation of POLAE, still in 2014, meals for students regularly enrolled in the institution started to be free of charge for them. Now that the access to Student Meal is free, the demand to the Institutional Restaurant increased significantly.

In 2015, foreseeing the increase in the demand due to obligatory cost-free access, the *Campus* implemented the SARI (Institutional Restaurant Access System - in Portuguese “*Sistema de Acesso ao Restaurante Institucional*) – in order to monitor the access of the user, during the administration of Professor Odimógenes Soares Lopes as Director. This action was necessary in order to monitor the access to the Restaurant and limit the number of daily meals produced, being 400 meals for lunch and 200 for dinner, due mainly to the limited physical floor space of the Restaurant. Moreover, the lack of sufficient technical staff among other things hinder the proportional growth of the Restaurant in relation to the growth of the Institution.

The production of six hundred meals a day became the main goal, however it was difficult to reach it surprisingly because of the small fee charged to use Restaurant’s services, and also due to the difficulty students faced to buy paper tickets. However, by the end of 2015, after SARI started running, the *Campus* reached an average of 342 lunches and 190 dinners, noting that in some days that maximum capacity of the restaurant was reached although it was not able to offer enough food for the day’s demand. This shows how important it is to grant free access to students, as well as the implementation of SARI.

Let’s observe the evolution of the demand for the Institutional Restaurant in Floriano *Campus* before and after SARI’s implementation on the following graph:



Graph 1: Average quantity of daily meals (ALMOÇO, JANTAR, LUNCH and DINNER in English) served in the IR Floriano *Campus*

Source: Restaurante Institucional do IFPI – *Campus* Floriano/SARI

A new challenge that came with the cost-free meals was food waste, because of users who book the meals in the system and don't attend to the Restaurant, as well as the daily food leftovers. However, through these years of operation of SARI, many different changes were executed and the amount of food waste from user's nonattendance has been shrinking to extreme low levels, as it shall be observed ahead.

THE INSTITUTIONAL RESTAURANT ACCESS SYSTEM

The Institutional Restaurant Access System (SARI) is a software that controls the access to the Institutional Restaurant of Floriano *Campus*, by booking (for students) or buying (servants and employees) the meals on the internet. The SARI started operations in 2015, when access to the restaurant became cost-free to students on Floriano *Campus*. The system was designed by different sectors - Social Services, Nutrition, Psychology, Teaching, Maintenance and Logistics and Student Assistance Commission – in partnership with the Direction General and developed by the Information Technology staff on *Campus*.

Before SARI's implementation, a small fee was charged from students in exchange for a paper ticket in order to allow their access to the Restaurant's services, a job that was carried out by a specific employee, who printed the paper tickets and handled the job in a specific room. Therefore, ink, paper and public servants were necessary to carry out the ticket administration. Besides, money circulated inside the institution, an issue that is absolutely not recommended.

The access to the Restaurant through SARI is now available on the address <http://www.floriano.ifpi.edu.br/sari>, where users access the main interface, on which they are asked their user login and password. The website also has a *mobile* version, responsive to any screen, be it a *smartphone* or computer.



Picture 4: home screen of SARI

Source: Floriano *Campus* archives

Nowadays the IT staff registers all enrolled students in the Institute on the system. The *Login* is the student's CPF (brazilian citizen register number) and the password is given by default by the IT staff, so students must change the password when they log in for the first time. For servants and employees the login and password register is made in the IT sector, but soon the access for servants will be through the federal administration computer system (SUAP).

The fact that SARI was developed on *Campus* favors the implementation of new functionalities and allows better improvements as the system is used and new ideas and necessities arise and suggestions are presented.

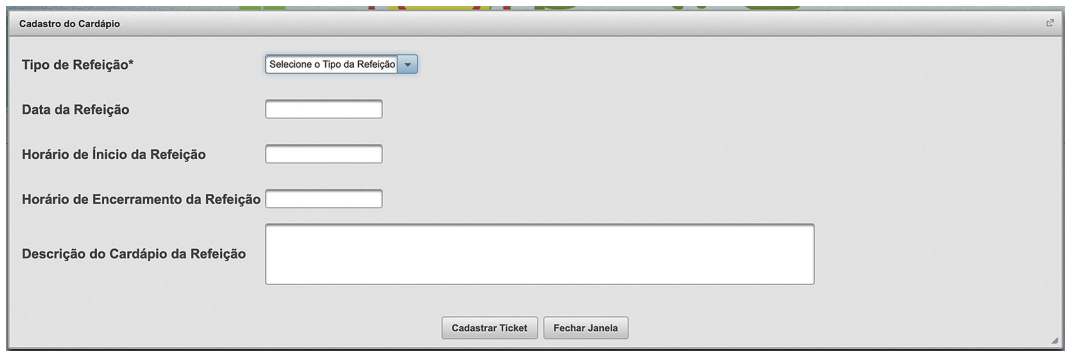
SARI's implementation became simpler, efficient and more objective to Restaurant users, because the access to the physical installation occurs by using barcode scanners on student's school ID, installed in a terminal next to the Restaurant, shown in picture 5. In this way, the risk of people other than the school community using the service was also eliminated.



Picture 5: Institutional Restaurant access terminal

Source: *Campus Floriano* archives

The nutritionist registers the menu for the whole week, as shown on picture 6 below, so users may plan their meals in the Restaurant. Today, the Restaurant offers 400 meals for lunch and 200 meals for the dinner.



The screenshot shows a web application window titled "Cadastro do Cardápio". It contains several input fields: a dropdown menu for "Tipo de Refeição*" with the text "Selecione o Tipo da Refeição", three text boxes for "Data da Refeição", "Horário de Início da Refeição", and "Horário de Encerramento da Refeição", and a larger text area for "Descrição do Cardápio da Refeição". At the bottom, there are two buttons: "Cadastrar Ticket" and "Fechar Janela".

Picture 6: Menu register screen, access restricted to the nutritionist and administration

When SARI began operating, all meals were liberated on Sunday and users could book the meals for the whole week, for both meals. However, this rule changed over time, because a lot of user, for reasons unknown, failed to attend to the Restaurant.

The system went through many different updates and today users can only book meals once per meal and shift and by priority, as follows: lunch booking begins at 9 p.m. the day before the meal, prioritizing students enrolled in morning and afternoon shifts. After 10 p.m, the remaining meals are liberated to the other users. Dinner booking begins at 11 a.m. on the same day of the meal, prioritizing students enrolled in evening shift, and at 12 a.m. the remaining ones go the rest of users.

The users can only log in SARI at their predetermined schedules, and book meals, as shown on picture 7, at a deadline of 90 minutes before the meals, when SARI ends booking and the nutritionist access the data with the number of meals to be prepared, thus preventing waste or lack of food. A pattern was discovered by the nutritionist, which she uses to plan for meals in advance; the largest demand is on Wednesday, the busiest day of school, in which there are more classes on both shifts

Solicitar/Comprar Ticket Usuário: [Redacted] (Aluno) Saldo em créditos: R\$ Ilimitado Turno: Manhã/Tarde

CARDÁPIO
(Semana de 07/03/2019 a 08/03/2019)

Data	Refeição	Horário de Funcionamento	Quant. Disponível	Quant. Comprada	Compra de Ticket
08/03/2019 (Sexta)	Jantar - Salada crua, Arroz, Feijão, Lasanha de Queijo e Presunto, Batata Palha - Melão	de 17:30 às 19:00	200 tickets disponíveis	0	
08/03/2019 (Sexta)	Almoço - Salada crua, Arroz colorido, Feijão, Peixe assado ao forno com batata, Macarrão - Banana	de 11:30 às 13:00	400 tickets disponíveis	0	
07/03/2019 (Quinta)	Jantar - Salada crua, Arroz com colorido, Feijão Preto, Bisteca suína, Macarrão - Melancia	de 17:30 às 19:00	200 tickets disponíveis	0	
07/03/2019 (Quinta)	Almoço - Salada crua, Arroz à grega, Feijão, Assado de Panela, Farofa - Manjar Branco	de 11:30 às 13:00	155 tickets disponíveis	0	+

** SAIR DO SISTEMA **

VALORES
ALUNO: R\$ 0,00 PROFESSOR: R\$ 2,00 TÉCNICO ADMINISTRATIVO: R\$ 2,00 TERCEIRIZADO: R\$ 1,00
ATENDEMOS EXCLUSIVAMENTE À COMUNIDADE DO IFPI
EVITE O DESPERDÍCIO!

Observações: O ticket do almoço para o dia corrente estará disponível a partir das 21:00 horas do dia anterior para alunos do turno da manhã/tarde e para servidores e terceirizados. Quando for a partir das 22:00 o ticket do almoço estará disponível para todos os usuários do sistema.
Já com relação ao ticket do jantar só poderá ser reservado no dia corrente e o mesmo estará disponível a partir das 11:00 para alunos do turno da noite e para servidores e terceirizados. Quando for a partir das 12:00 horas o ticket do jantar do dia corrente estará disponível para todos os usuários do sistema.
Lembrando que todos os tickets estarão disponíveis para venda e cancelamento até o período de 1h:30min antes do início da refeição.

Picture 7: Meal booking screen

Solicitar/Comprar Ticket Usuário: [Redacted] (Aluno) Saldo em créditos: R\$ Ilimitado Turno: Manhã/Tarde

CARDÁPIO
(Semana de 07/03/2019 a 08/03/2019)

Data	Refeição	Horário de Funcionamento	Quant. Disponível	Quant. Comprada	Compra de Ticket
08/03/2019 (Sexta)	Jantar - Salada crua, Arroz, Feijão, Lasanha de Queijo e Presunto, Batata Palha - Melão	de 17:30 às 19:00	200 tickets disponíveis	0	
08/03/2019 (Sexta)	Almoço - Salada crua, Arroz colorido, Feijão, Peixe assado ao forno com batata, Macarrão - Banana	de 11:30 às 13:00	400 tickets disponíveis	0	
07/03/2019 (Quinta)	Jantar - Salada crua, Arroz com colorido, Feijão Preto, Bisteca suína, Macarrão - Melancia	de 17:30 às 19:00	200 tickets disponíveis	0	
07/03/2019 (Quinta)	Almoço - Salada crua, Arroz à grega, Feijão, Assado de Panela, Farofa - Manjar Branco	de 11:30 às 13:00	154 tickets disponíveis	1	-

** SAIR DO SISTEMA **

VALORES
ALUNO: R\$ 0,00 PROFESSOR: R\$ 2,00 TÉCNICO ADMINISTRATIVO: R\$ 2,00 TERCEIRIZADO: R\$ 1,00
ATENDEMOS EXCLUSIVAMENTE À COMUNIDADE DO IFPI
EVITE O DESPERDÍCIO!

Observações: O ticket do almoço para o dia corrente estará disponível a partir das 21:00 horas do dia anterior para alunos do turno da manhã/tarde e para servidores e terceirizados. Quando for a partir das 22:00 o ticket do almoço estará disponível para todos os usuários do sistema.
Já com relação ao ticket do jantar só poderá ser reservado no dia corrente e o mesmo estará disponível a partir das 11:00 para alunos do turno da noite e para servidores e terceirizados. Quando for a partir das 12:00 horas o ticket do jantar do dia corrente estará disponível para todos os usuários do sistema.
Lembrando que todos os tickets estarão disponíveis para venda e cancelamento até o período de 1h:30min antes do início da refeição.

Picture 8: Meal booking screen

On SARI's screens above (pictures 7 and 8), users have the menu, the schedule, available tickets, remaining tickets and the hours of the day on which they can book their meals. The button plus (+) indicates that the meal is available, and, when clicked on, it turns to minus (-) changing the number of available meals. Users may cancel the meal until 90 minutes before the serving begins clicking on the minus button again. However, after this deadline, user cannot book or cancel the meal.

So 90 minutes before serving, the nutritionist has access to important information about the number of booked meals and a profile of the user, clicking on Visualizar Compradores (View Buyers), as shown on pictures 9 and 10 below.

Data do Ticket (aaaa-mm-dd)	Tipo de Refeição	Horário de Funcionamento	Visualiza Compradores	Visualiza Tickets Usados
08/03/2019 (Sexta)	Jantar	de 17:30 às 19:00	Visualiza Compradores	Visualiza Tickets Usados
08/03/2019 (Sexta)	Almoço	de 11:30 às 13:00	Visualiza Compradores	Visualiza Tickets Usados
07/03/2019 (Quinta)	Jantar	de 17:30 às 19:00	Visualiza Compradores	Visualiza Tickets Usados
07/03/2019 (Quinta)	Almoço	de 11:30 às 13:00	Visualiza Compradores	Visualiza Tickets Usados
01/03/2019 (Sexta)	Jantar	de 17:30 às 19:00	Visualiza Compradores	Visualiza Tickets Usados
01/03/2019 (Sexta)	Almoço	de 11:30 às 13:00	Visualiza Compradores	Visualiza Tickets Usados
28/02/2019 (Quinta)	Jantar	de 17:30 às 19:00	Visualiza Compradores	Visualiza Tickets Usados
28/02/2019 (Quinta)	Almoço	de 11:30 às 13:10	Visualiza Compradores	Visualiza Tickets Usados
27/02/2019 (Quarta)	Jantar	de 17:30 às 19:00	Visualiza Compradores	Visualiza Tickets Usados
27/02/2019 (Quarta)	Almoço	de 11:30 às 13:05	Visualiza Compradores	Visualiza Tickets Usados

Picture 9: Restricted screen to view the user's profile

Compradores do Ticket da Refeição: Almoço Dia: 07/03/2019 (Quinta) Cardápio: Salada crua, Arroz à grega, Feijão, Assado de Panela, Farofa - Manjar Branco

Procurar nos campos matrícula, nome, CPF: Carregar

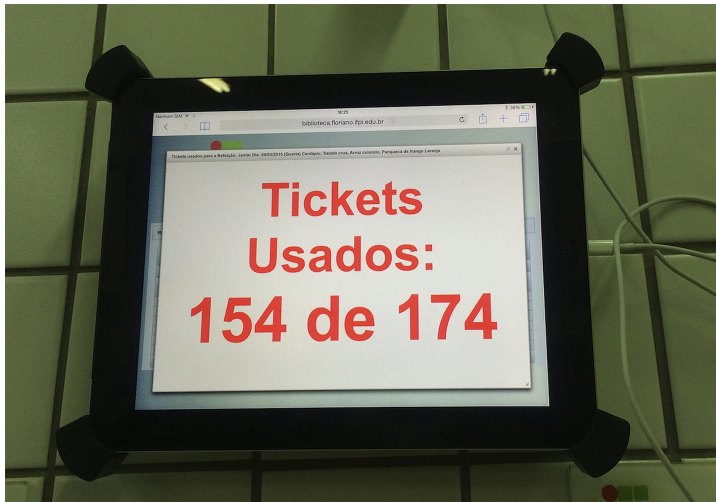
Imprimir Lista

Lista de Compradores do Almoço Dia: 07/03/2019 (Quinta) Cardápio: Salada crua, Arroz à grega, Feijão, Assado de Panela, Farofa - Manjar Branco
Horário da Refeição: de 11:30 às 13:00
(Obs: Só poderá atualizar o status dos tickets a partir de 10 minutos antes do início da refeição e até o final do horário da refeição.)
Total Geral de Tickets Comprados para a refeição selecionada: 299
Total Geral de Tickets Usados: 0/299

Foto	Matrícula	Turno	Nome	CPF	Ticket	Quantidade	Status
		Manhã/Tarde			07/03/2019 (Quinta) Almoço	1	Não Usado
		Manhã/Tarde			07/03/2019 (Quinta) Almoço	1	Não Usado
		Manhã/Tarde			07/03/2019 (Quinta) Almoço	1	Não Usado

Picture 10: Profile screen of restaurant users

During the IR operation, as users enter the cantina after the terminals with barcode scanners are used on their IDs, SARI verifies if that users booked or didn't book that meal, clearing him/her for the access. Employees in the sector follow the number of *tickets* used, clicking on Visualiza Tickets Usados (picture 9). So, a screen will be shown with the number of used and booked tickets for that meal.



Picture 11: Monitor with the countdown of remaining tickets (154 out of 174)
Source: *Campus* Florianópolis archives.

So, the validated tickets are altered from **Non-Used** to **Used**. After the end of restaurant schedule for the day, the system closes, and shuts down the access of users to the Institutional Restaurant, and registers the numbers of users that haven't used their *ticket*, alterando the status of **Non-used** to **Expired** as shown on picture 12.

Compradores do Ticket da Refeição: Almoço Dia: 11/03/2019 (Segunda) Cardápio: Salada crua, Arroz à grega, Feijão, Frango assado, Farofa - Banana

Procurar nos campos matrícula, nome, CPF: Carregar

Imprimir Lista

Lista de Compradores do Almoço Dia: 11/03/2019 (Segunda) Cardápio: Salada crua, Arroz à grega, Feijão, Frango assado, Farofa - Banana
Horário da Refeição: de 11:30 as 13:17
(Obs: Só poderá atualizar o status dos tickets a partir de 10 minutos antes do início da refeição e até o final do horário da refeição.)
Total Geral de Tickets Comprados para a refeição selecionada: 181
Total Geral de Tickets Usados: 180/181

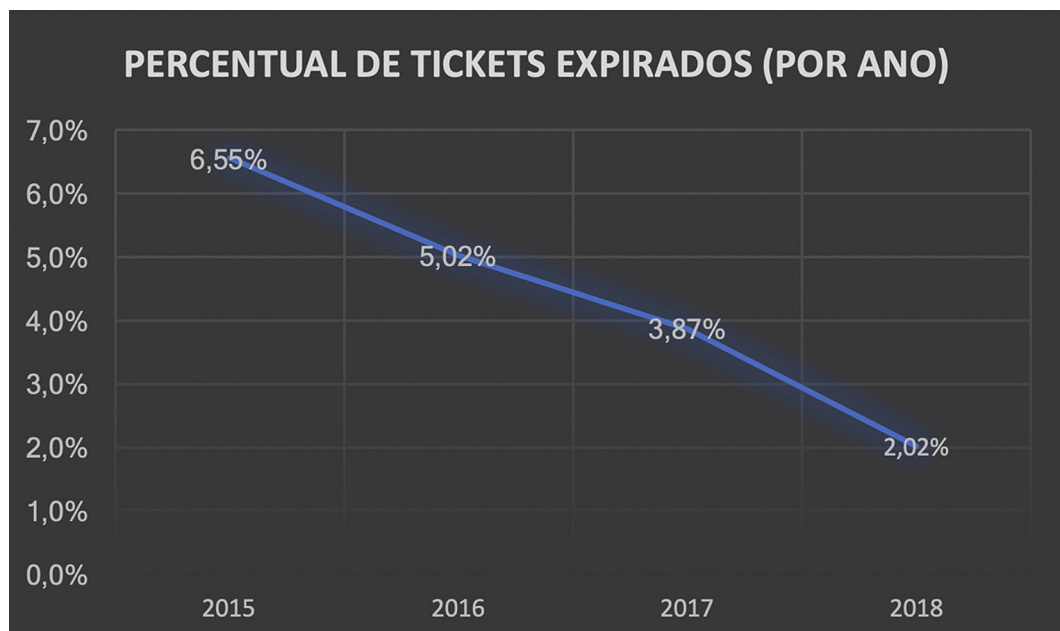
Foto	Matrícula	Turno	Nome	CPF	Ticket	Quantidade	Status
		Noite			11/03/2019 (Segunda) Almoço	1	Expirado
		Manhã/Tarde			11/03/2019 (Segunda) Almoço	1	Usado
		Manhã/Tarde			11/03/2019 (Segunda) Almoço	1	Usado

Picture 12: Screen of Used and Expired Tickets

In order to monitor the user's responsibility in food waste, the users have their access to SARI denied after two expired tickets. The users may have their access to the system restored if they register on the system an unblock request, on which they must inform the reason why they failed to attend to the restaurant and what they will do to avoid new blocks. The request is then analysed, and it may be deferred or denied. When the access is denied, the user may only unblock by analysis of the Director General.

Moreover, the system creates important reports about the use of the Institutional Restaurant. There are daily, weekly and monthly reports with information about the number of tickets used and non-used, by date and type of meal, that are used to monitor food waste from expired tickets.

Along the SARI operation, our staff have observed user's behavior and taken action to prevent further food waste in the form of non-used and expired tickets. These actions have contributed to the decrease in the percentage of expired tickets, as shown on the graph below. Still, the expired tickets do not necessarily mean food waste, because the employees working in the Restaurant are authorized to allow the expired tickets to be used by students who haven't book the meal on schedule but wish have lunch or dinner.



Graph 2: Annual quantity of used and expired tickets

Source: Institutional Restaurant of IFPI - Floriano *Campus*/SARI

We noticed, therefore, that the benefits of the system are so significant, that although it was developed on *Campus*, we have the pleasure to provide the system to other IFPI *Campi*. Some *Campi* already use the system, namely, Angical do Piauí, Campo Maior, Pedro II, Paulistana, Oeiras and São João do Piauí, and it was an example to the developing of similar systems on the *Campi* of Corrente, Picos, Piripiri and Valença do Piauí.

CONCLUSION

Therefore, we noticed along this paper that the implementation of SARI allowed many different benefits to *Campus* Floriano community as a whole, from the administration, teaching sector, planning and nutrition, and specially for students, because we observed a significant increase in student demand for the Institutional Restaurant, considering that the service became cost-free and the access more practical.

With SARI, we avoided daily printing of paper tickets and employment of personal to such an end, but now with online booking there is no need of an public servant to handle and sell tickets daily. And the system also contributed to the end of money circulating on *Campus*, thus complying with an internal IFPI audit, and a better control and monitoring of public budget.

The growth of student demand for the Restaurant, to the Teaching sector, means that more students will be able to learn better, because they will not need to have their meals outside the school, as well as ensuring that they will get a balanced meal to a large number of students.

Different benefits have been observed by the nutritionist like: the possibility to visualize, according to the schedule, the number of booked users by meal, to prevent food waste; technical reports issued with the number and the name of users who had their meals or didn't have it because they failed to attend to the Restaurant, over a period of time, to better monitor the service at the Restaurant; monitoring of the users left to have the meal and the ones that already had the meal to monitor the quantity of food being served; and the use of barcode scanners on user's IDs to identify users by a snapshot, preventing the access of people other than the school community to the Restaurant.

The main benefits to students were; cost-free tickets and easy access to book them, once before the system, the student had to go himself to *Campus* to buy his or her ticket; menus available online; and the possibility

to cancel the ticket 90 minutes before the serving of meals in case the student cannot attend to the Restaurant.

However, besides all these benefits, we highlight some future upgrades needed in order to improve SARI: the acquisition of electronic turnstiles with fingerprint scanners to improve and speed up the access of students to the Institutional Restaurant; alerts to users with changes in menu and the proximity of the booking deadline; the creation of visitor login, once visitors from other *Campi* sometimes use the Restaurant; and the upgrade of the graphic interface, which is still very simple.

In conclusion, we suggested to IFPI Rectory that SARI should be upgraded, institutionalized and consequently implemented on all *Campi* with Institutional Restaurants. In this way, the staff responsible for Student Assistance would be more efficient, and also the SARI could be integrated to other institutional systems like the Q-Acadêmico, SUAP, and the Student Assistance Flux System (SIFAE).

Watch this video about SARI available on this link <https://goo.gl/q94Erq> or reading the QR CODE below:



REFERENCES

BRASIL. Lei nº 8.948, de 08 dezembro de 1994. Dispõe sobre a instituição do Sistema Nacional de Educação Tecnológica e dá outras providências. *Lex*: Coletânea de Legislação e Jurisprudência, Brasília. Legislação Federal e marginália. Available from: http://www.planalto.gov.br/ccivil_03/LEIS/L8948.htm. Access: 5 mar. 2019.

BRASIL. Lei nº 11.892, de 29 de dezembro de 2008. Institui a Rede Federal de Educação Profissional, Científica e Tecnológica, cria os Institutos Federais de Educação, Ciência e Tecnologia, e dá outras providências. *Lex*: Coletânea de Legislação e Jurisprudência, Brasília. Legislação Federal e marginália. Available from: http://www.planalto.gov.br/ccivil_03/_Ato2007-2010/2008/Lei/L11892.htm. Access: 5 mar. 2019.

INSTITUTO FEDERAL DE EDUCAÇÃO, CIÊNCIA E TECNOLOGIA DO PIAUÍ. Aprova a Política de Assistência Estudantil do IFPI. Resolução Nº 014/2014, 08/04/2014. *Lex*: Resoluções CONSUP/IFPI, Piauí. Legislação Federal e marginália. Available from: https://www5.ifpi.edu.br/consup/attachments/article/10/resolu%C3%A7ao_consup_0142014.pdf. Access: 5 mar. 2019.

RODRIGUES, A. G. *A Escola Técnica Federal do Piauí e sua 1ª UNED*: mãe aos 84 anos. 1th ed. Teresina: ETFPI, 1995.

RODRIGUES, A. G. 90 anos de Ensino Profissionalizante. *In*: RODRIGUES, A. G. *Centro Federal de Educação Tecnológica do Piauí*. Teresina: EDUFPI, 2002.