# Proyecto 1 - Máquina de Estados Finitos

• Interfaz principal, selección de menús.

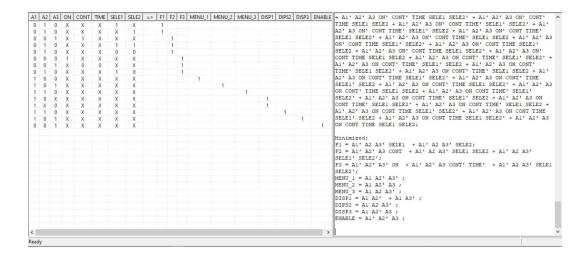
Tabla de transiciones de estado:

ESTADO			INPUTS			ESTADO
ACTUAL	On	Continuar	Time	Seleccionar 1	Seleccionar 2	FUTURO
SR	0	X	X	X	X	SR'
SR	1	X	X	X	X	S0'
S0	X	0	0	X	X	S0'
S0	X	0	1	X	X	SR'
S0	X	1	X	X	X	S1'
S1	X	X	X	0	0	S1'
S1	X	X	X	0	1	S2'
S1	X	X	X	1	0	S3'
S1	X	X	X	1	1	S4'
S2	X	X	X	X	X	S0'
S3	Х	X	X	X	X	S0'
S4	X	X	X	X	X	S0'

Tabla de transiciones de estado codificada:

A1	A2	A3	ON	CONT	TIME	SELE1	SELE2	F1	F2	F3
0	0	0	0	Х	Х	Х	X	0	0	0
0	0	0	1	Х	Х	Х	Х	0	0	1
0	0	1	X	0	0	X	X	0	0	1
0	0	1	X	0	1	Х	X	0	0	0
0	0	1	X	1	X	X	X	0	1	0
0	1	0	X	Х	Х	0	0	0	1	0
0	1	0	X	X	X	0	1	1	0	0
0	1	0	X	Х	X	1	0	1	0	1
0	1	0	X	X	X	1	1	1	1	0
1	0	0	X	Х	X	Х	X	1	0	0
1	0	1	X	X	X	X	X	1	0	1
1	1	0	X	X	X	Х	X	1	1	0

AC	TU	AL	OUTPUTS						
A1	A2	A3	MENU_1	MENU_2	MENU_3	DISP1	DIPS2	DISP3	ENABLE
0	0	0	X	Х	Х	0	0	0	0
0	0	0	X	Х	Х	0	0	0	0
0	0	1	Х	Х	Х	0	0	0	1
0	0	1	Х	Х	Х	0	0	0	1
0	0	1	Х	Х	Х	0	0	0	1
0	1	0	Χ	X	Х	0	0	0	0
0	1	0	Х	Х	Х	0	0	0	0
0	1	0	Χ	Х	Х	0	0	0	0
0	1	0	Х	Х	Х	0	0	0	0
1	0	0	1	0	0	1	0	0	0
1	0	1	0	1	0	1	0	1	0
1	1	0	0	0	1	1	1	0	0



#### **Ecuaciones Booleanas:**

```
Minimized:
F1 = A1' A2 A3' SELE1 + A1' A2 A3' SELE2;
F2 = A1' A2' A3 CONT + A1' A2 A3' SELE1 SELE2 + A1' A2 A3' SELE1' SELE2';
F3 = A1' A2' A3' ON + A1' A2' A3 CONT' TIME' + A1' A2 A3' SELE1 SELE2';
MENU_1 = A1 A2' A3';
MENU_2 = A1 A2' A3;
MENU_3 = A1 A2 A3';
DISP1 = A1 A2' + A1 A3';
DISP2 = A1 A2 A3';
DISP3 = A1 A2 A3';
ENABLE = A1' A2' A3;
```

• Interfaz del menú 1, 2 y 3 - Menú de platos fuertes, guarniciones y bebidas respectivamente

ESTADO			INPUTS				ESTADO
ACTUAL	ON	CONT	TIME	SELE1	SELE2	SELE3	FUTURO
SR	0	X	X	X	X	X	SR
SR	1	X	X	X	X	X	S0
0	X	0	0	X	X	X	S0
S0	X	0	1	X	X	X	SR
S0	X	1	X	X	X	X	S1
S1	X	X	X	0	0	0	S1
S1	X	X	X	0	0	1	S2
S1	X	X	X	0	1	0	S3
S1	X	X	X	0	1	1	S4
S1	X	X	X	1	0	0	S5
S1	X	X	X	1	0	1	S1
S1	X	X	X	1	1	0	S1
S1	X	X	X	1	1	1	S0
S2	X	X	X	X	X	X	SR
S3	X	X	X	X	X	X	SR
S4	X	X	X	X	X	X	SR
S5	X	X	X	X	X	X	SR

A1	A2	A3	ON	CONT	TIME	SELE1	SELE2	SELE3	F1	F2	F3
0	0	0	0	X	X	X	X	X	0	0	0
0	0	0	1	X	X	X	X	X	0	0	1
0	0	1	X	0	0	X	X	X	0	0	1
0	0	1	X	0	1	X	X	X	0	0	0
0	0	1	X	1	X	X	X	X	0	1	0
0	1	0	X	X	X	0	0	0	0	1	0
0	1	0	X	X	X	0	0	1	0	1	1
0	1	0	X	X	X	0	1	0	1	0	0
0	1	0	X	X	X	0	1	1	1	0	1
0	1	0	X	X	X	1	0	0	1	1	0
0	1	0	X	X	X	1	0	1	0	1	0
0	1	0	X	X	X	1	1	0	0	1	0
0	1	0	X	X	X	1	1	1	0	0	1
0	1	1	X	X	X	X	X	X	0	0	0
1	0	0	X	X	X	X	X	X	0	0	0
1	0	1	X	X	X	X	X	X	0	0	0
1	1	0	X	X	X	X	X	X	0	0	0

## Tabla de salidas:

A1	A2	A3	F1	F2	F3	OP1	OP2	OP3	OP4	DISP1	DISP2	DISP3	DISP4	ENABLE
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
0	0	1	0	1	0	0	0	0	0	0	0	0	0	1
0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
0	1	0	0	1	1	0	0	0	0	0	0	0	0	0
0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
0	1	0	1	0	1	0	0	0	0	0	0	0	0	0
0	1	0	1	1	0	0	0	0	0	0	0	0	0	0
0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
0	1	1	0	0	0	1	0	0	0	1	0	0	0	0
1	0	0	0	0	0	0	1	0	0	0	1	0	0	0
1	0	1	0	0	0	0	0	1	0	0	0	1	0	0
1	1	0	0	0	0	0	0	0	1	0	0	0	1	0

# Tabla obtenida con la herramienta Logic Friday:

#### Ecuaciones Booleanas:

```
Minimized:

F1 = A1' A2 A3' SELE1' SELE2 + A1' A2 A3' SELE1 SELE2' SELE3';

F2 = A1' A2' A3 CONT + A1' A2 A3' SELE2' + A1' A2 A3' SELE1 SELE3';

F3 = A1' A2' A3' ON + A1' A2' A3 CONT' TIME' + A1' A2 A3' SELE1 SELE3 + A1' A2 A3' SELE2 SELE3;

OP1 = A1' A2 A3 ;

OP2 = A1 A2' A3';

OP3 = A1 A2' A3 ;

OP4 = A1 A2 A3';

DISP1 = A1' A2 A3 ;

DISP2 = A1 A2' A3 ;

DISP3 = A1 A2' A3 ;

DISP4 = A1 A2 A3';

ENABLE = A1' A2' A3 ;
```

## • Selección de bebidas

#### - Bebida 1

ACTUAL	DISP1	DISP2	DISP3	DISP4	SELE1	SELE2	FUTURO
SR	0	0	0	0	X	X	SR
SR	0	0	0	1	X	X	SR
SR	0	0	1	0	X	X	SR
SR	0	0	1	1	X	X	SR
SR	0	1	0	0	X	X	SR
SR	0	1	0	1	X	X	SR
SR	0	1	1	0	X	X	SR
SR	0	1	1	1	X	X	SR
SR	1	0	0	1	X	X	SR
SR	1	0	1	0	X	X	SR
SR	1	0	1	1	X	X	SR
SR	1	1	0	0	X	X	SR
SR	1	1	0	1	X	X	SR
SR	1	1	1	0	X	X	SR
SR	1	1	1	1	X	X	SR
SR	1	0	0	0	X	X	S0
S0	X	X	X	X	0	0	S0
S0	X	X	X	X	1	1	S0
S0	X	X	X	X	0	1	S1
S0	X	X	X	X	1	0	S2
S1	X	X	X	X	X	X	SR
S2	X	X	X	X	X	X	SR

A1	A2	A3	DISP1	DISP2	DISP3	DISP4	SELE1	SELE2	F1	F2	F3
0	0	0	0	0	0	0	X	X	0	0	0
0	0	0	0	0	0	1	X	X	0	0	0
0	0	0	0	0	1	0	X	X	0	0	0
0	0	0	0	0	1	1	X	X	0	0	0
0	0	0	0	1	0	0	X	X	0	0	0
0	0	0	0	1	0	1	X	X	0	0	0
0	0	0	0	1	1	0	X	X	0	0	0
0	0	0	0	1	1	1	X	X	0	0	0
0	0	0	1	0	0	1	X	X	0	0	0
0	0	0	1	0	1	0	X	X	0	0	0
0	0	0	1	0	1	1	X	X	0	0	0
0	0	0	1	1	0	0	X	X	0	0	0
0	0	0	1	1	0	1	X	X	0	0	0
0	0	0	1	1	1	0	X	X	0	0	0
0	0	0	1	1	1	1	X	X	0	0	0
0	0	0	1	0	0	0	X	X	0	0	1
0	0	1	X	X	X	X	0	0	0	0	1
0	0	1	X	X	X	X	1	1	0	0	1
0	0	1	X	X	X	X	0	1	0	1	0
0	0	1	X	X	X	X	1	0	0	1	1
0	1	0	X	X	X	X	X	X	0	0	0
0	1	1	X	X	X	X	X	X	0	0	0

A1	A2	A3	G	P
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	0
0	0	1	0	0
0	0	1	1	0
0	0	1	0	1
0	1	0	0	0
0	1	1	0	0

A1	A2	A3	DISP1	DISP2	DISP3	DISP4	SELE1	SELE2	=>	F1 F	2 F3	G	P	A2' A3 DISP1 DISP2 DISP3' DISP4 SELE1 SELE2 + A1' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1'
0	0	1	X	X	X	X	0	1						SELE2' + A1' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1 SELE2' + A1' A2' A3 DISP1 DISP2 DISP3
0	0	1	X	X	X	X	1	0						DISP4' SELE1 SELE2 + Al' A2' A3 DISP1 DISP2 DISP3 DISP4 SELE1' SELE2' + Al' A2' A3 DISP1
0	0	1	X	X	X	X	1	X			1			DISP2 DISP3 DISP4 SELE1 SELE2' + A1' A2' A3 DISP1 DISP2 DISP3 DISP4 SELE1 SELE2;
0	0	1	X	X	X	X	X	0			1			G = A1' A2' A3 DISP1' DISP2' DISP3' DISP4' SELE1' SELE2 + A1' A2' A3 DISP1' DISP2' DISP3'
0	0	0	1	0	0	0	X	X			1			DISP4 SELE1' SELE2 + A1' A2' A3 DISP1' DISP2' DISP3 DISP4' SELE1' SELE2 + A1' A2' A3 DISP1'
0	0	1	X	X	X	X	0	1				1		DISP2' DISP3 DISP4 SELE1' SELE2 + A1' A2' A3 DISP1' DISP2 DISP3' DISP4' SELE1' SELE2 + A1'
0	0	1	X	X	X	X	1	0					1	A2' A3 DISP1' DISP2 DISP3' DISP4 SELE1' SELE2 + A1' A2' A3 DISP1' DISP2 DISP3 DISP4' SELE1'
														SELE2 + A1' A2' A3 DISP1' DISP2 DISP3 DISP4 SELE1' SELE2 + A1' A2' A3 DISP1 DISP2' DISP3'
														DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2' DISP3' DISP4 SELE1' SELE2 + A1' A2' A3 DISP1
														DISP2' DISP3 DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2' DISP3 DISP4 SELE1' SELE2 + A1'
														A2' A3 DISP1 DISP2 DISP3' DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2 DISP3' DISP4 SELE1'
														SELE2 + A1' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2 DISP3 DISP4
														SELE1' SELE2;
														P = A1' A2' A3 DISP1' DISP2' DISP3' DISP4' SELE1 SELE2' + A1' A2' A3 DISP1' DISP2' DISP3'
														DISP4 SELE1 SELE2' + A1' A2' A3 DISP1' DISP2' DISP3 DISP4' SELE1 SELE2' + A1' A2' A3 DISP1'
														DISP2' DISP3 DISP4 SELE1 SELE2' + A1' A2' A3 DISP1' DISP2 DISP3' DISP4' SELE1 SELE2' + A1'
														A2' A3 DISP1' DISP2 DISP3' DISP4 SELE1 SELE2' + A1' A2' A3 DISP1' DISP2 DISP3 DISP4' SELE1
														SELE2' + A1' A2' A3 DISP1' DISP2 DISP3 DISP4 SELE1 SELE2' + A1' A2' A3 DISP1 DISP2' DISP3'
														DISP4' SELE1 SELE2' + A1' A2' A3 DISP1 DISP2' DISP3' DISP4 SELE1 SELE2' + A1' A2' A3 DISP1
														DISP2' DISP3 DISP4' SELE1 SELE2' + A1' A2' A3 DISP1 DISP2' DISP3 DISP4 SELE1 SELE2' + A1'
														A2' A3 DISP1 DISP2 DISP3' DISP4' SELE1 SELE2' + A1' A2' A3 DISP1 DISP2 DISP3' DISP4 SELE1
														SELE2' + A1' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1 SELE2' + A1' A2' A3 DISP1 DISP2 DISP3
														DISP4 SELE1 SELE2';
														Minimized:
														F1 = 0;
														F2 = Al' A2' A3 SELE1' SELE2 + Al' A2' A3 SELE1 SELE2';
														F3 = A1' A2' A3 SELE1 + A1' A2' A3 SELE2' + A1' A2' A3' DISP1 DISP2' DISP3' DISP4';
														G = Al' A2' A3 SELE1' SELE2;
														P = Al' A2' A3 SELE1 SELE2';

#### Ecuaciones Booleanas:

```
Minimized:
F1 = 0;
F2 = A1' A2' A3 SELE1' SELE2 + A1' A2' A3 SELE1 SELE2';
F3 = A1' A2' A3 SELE1 + A1' A2' A3 SELE2' + A1' A2' A3' DISP1 DISP2' DISP3' DISP4';
G = A1' A2' A3 SELE1' SELE2;
P = A1' A2' A3 SELE1 SELE2';
```

#### - Bebida 2

ACTUAL	DISP1	DISP2	DISP3	DISP4	SELE1	SELE2	FUTURO
SR	0	0	0	0	X	X	SR
SR	0	0	0	1	X	X	SR
SR	0	0	1	0	X	X	SR
SR	0	0	1	1	X	X	SR
SR	0	1	0	0	X	X	S0
SR	0	1	0	1	X	X	SR
SR	0	1	1	0	X	X	SR
SR	0	1	1	1	X	X	SR
SR	1	0	0	1	X	X	SR
SR	1	0	1	0	X	X	SR
SR	1	0	1	1	X	X	SR
SR	1	1	0	0	X	X	SR
SR	1	1	0	11	X	X	SR
SR	1	1	1	0	X	X	SR
SR	1	1	1	1	X	X	SR
SR	1	0	0	0	X	X	SR
S0	X	X	X	X	0	0	S0
S0	X	X	X	X	1	1	S0
S0	X	X	X	X	0	1	S1
S0	X	X	X	X	1	0	S2
S1	X	X	X	X	X	X	SR
S2	X	X	X	X	X	X	SR

A1	A2	A3	DISP1	DISP2	DISP3	DISP4	SELE1	SELE2	F1	F2	F3
0	0	0	0	0	0	0	X	X	0	0	0
0	0	0	0	0	0	1	X	X	0	0	0
0	0	0	0	0	1	0	X	X	0	0	0
0	0	0	0	0	1	1	X	X	0	0	0
0	0	0	0	1	0	0	X	X	0	0	1
0	0	0	0	1	0	1	X	X	0	0	0
0	0	0	0	1	1	0	X	X	0	0	0
0	0	0	0	1	1	1	X	X	0	0	0
0	0	0	1	0	0	1	X	X	0	0	0
0	0	0	1	0	1	0	X	X	0	0	0
0	0	0	1	0	1	1	X	X	0	0	0
0	0	0	1	1	0	0	X	X	0	0	0
0	0	0	1	1	0	1	X	X	0	0	0
0	0	0	1	1	1	0	X	X	0	0	0
0	0	0	1	1	1	1	X	X	0	0	0
0	0	0	1	0	0	0	X	X	0	0	0
0	0	1	X	X	X	X	0	0	0	0	1
0	0	1	X	X	X	X	1	1	0	0	1
0	0	1	X	X	X	X	0	1	0	1	0
0	0	1	X	X	X	X	1	0	0	1	1
0	1	0	X	X	X	X	X	X	0	0	0
0	1	1	X	X	X	X	X	X	0	0	0

A1	A2	A3	G	P
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	0
0	0	1	0	0
0	0	1	1	0
0	0	1	0	1
0	1	0	0	0
0	1	1	0	0

Α	1 A2	A3	DISP1	DISP2	DISP3	DISP4	SELE1	SELE2	=>	F1   I	2 F3	G	Р	A2' A3 DISP1 DISP2 DISP3' DISP4 SELE1 SELE2 + A1' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1'
	0 0	1	X	X	X	X	0	1			1			SELE2' + Al' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1 SELE2' + Al' A2' A3 DISP1 DISP2 DISP3
	0 0	1	X	X	X	X	1	0			1			DISP4' SELE1 SELE2 + Al' A2' A3 DISP1 DISP2 DISP3 DISP4 SELE1' SELE2' + Al' A2' A3 DISP1
	0 0	1	X	X	X	X	1	X			1			DISP2 DISP3 DISP4 SELE1 SELE2' + Al' A2' A3 DISP1 DISP2 DISP3 DISP4 SELE1 SELE2;
	0 0	1	X	X	X	X	X	0			1			G = Al' A2' A3 DISP1' DISP2' DISP3' DISP4' SELE1' SELE2 + Al' A2' A3 DISP1' DISP2' DISP3'
	0 0	0	0	1	0	0	X	X			1			DISP4 SELE1' SELE2 + A1' A2' A3 DISP1' DISP2' DISP3 DISP4' SELE1' SELE2 + A1' A2' A3 DISP1'
	0 0	1	X	X	X	X	0	1				1		DISP2' DISP3 DISP4 SELE1' SELE2 + A1' A2' A3 DISP1' DISP2 DISP3' DISP4' SELE1' SELE2 + A1'
	0 0	1	X	Х	X	X	1	0					1	A2' A3 DISP1' DISP2 DISP3' DISP4 SELE1' SELE2 + A1' A2' A3 DISP1' DISP2 DISP3 DISP4' SELE1'
														SELE2 + Al' A2' A3 DISP1' DISP2 DISP3 DISP4 SELE1' SELE2 + Al' A2' A3 DISP1 DISP2' DISP3'
														DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2' DISP3' DISP4 SELE1' SELE2 + A1' A2' A3 DISP1
														DISP2' DISP3 DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2' DISP3 DISP4 SELE1' SELE2 + A1'
														A2' A3 DISP1 DISP2 DISP3' DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2 DISP3' DISP4 SELE1'
														SELE2 + A1' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2 DISP3 DISP4
														SELE1' SELE2;
														P = A1' A2' A3 DISP1' DISP2' DISP3' DISP4' SELE1 SELE2' + A1' A2' A3 DISP1' DISP2' DISP3'
														DISP4 SELE1 SELE2' + Al' A2' A3 DISP1' DISP2' DISP3 DISP4' SELE1 SELE2' + Al' A2' A3 DISP1'
														DISP2' DISP3 DISP4 SELE1 SELE2' + Al' A2' A3 DISP1' DISP2 DISP3' DISP4' SELE1 SELE2' + Al'
														A2' A3 DISP1' DISP2 DISP3' DISP4 SELE1 SELE2' + A1' A2' A3 DISP1' DISP2 DISP3 DISP4' SELE1
														SELE2' + Al' A2' A3 DISP1' DISP2 DISP3 DISP4 SELE1 SELE2' + Al' A2' A3 DISP1 DISP2' DISP3'
														DISP4' SELE1 SELE2' + A1' A2' A3 DISP1 DISP2' DISP3' DISP4 SELE1 SELE2' + A1' A2' A3 DISP1
														DISP2' DISP3 DISP4' SELE1 SELE2' + A1' A2' A3 DISP1 DISP2' DISP3 DISP4 SELE1 SELE2' + A1'
														A2' A3 DISP1 DISP2 DISP3' DISP4' SELE1 SELE2' + A1' A2' A3 DISP1 DISP2 DISP3' DISP4 SELE1
														SELE2' + Al' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1 SELE2' + Al' A2' A3 DISP1 DISP2 DISP3
														DISP4 SELE1 SELE2';
														Minimized:
														F1 = 0;
														F2 = A1' A2' A3 SELE1' SELE2 + A1' A2' A3 SELE1 SELE2';
														F3 = A1' A2' A3 SELE1 + A1' A2' A3 SELE2' + A1' A2' A3' DISP1' DISP2 DISP3' DISP4';
														G = Al' A2' A3 SELE1' SELE2;
														P = A1' A2' A3 SELE1 SELE2';

#### Ecuaciones Booleanas:

```
Minimized:
F1 = 0;
F2 = A1' A2' A3 SELE1' SELE2 + A1' A2' A3 SELE1 SELE2';
F3 = A1' A2' A3 SELE1 + A1' A2' A3 SELE2' + A1' A2' A3' DISP1' DISP2 DISP3' DISP4';
G = A1' A2' A3 SELE1' SELE2;
P = A1' A2' A3 SELE1 SELE2';
```

#### - Bebida 3

ACTUAL	DISP1	DISP2	DISP3	DISP4	SELE1	SELE2	FUTURO
SR	0	0	0	0	X	X	SR
SR	0	0	0	1	X	X	SR
SR	0	0	1	0	X	X	S0
SR	0	0	1	1	X	X	SR
SR	0	1	0	0	X	X	SR
SR	0	1	0	1	X	X	SR
SR	0	1	1	0	X	X	SR
SR	0	1	1	1	X	X	SR
SR	1	0	0	1	X	X	SR
SR	1	0	1	0	X	X	SR
SR	1	0	1	1	X	X	SR
SR	1	1	0	0	X	X	SR
SR	1	1	0	1	X	X	SR
SR	1	1	1	0	X	X	SR
SR	1	1	1	1	X	X	SR
SR	1	0	0	0	X	X	SR
S0	X	X	X	X	0	0	S0
S0	X	X	X	X	1	1	S0
S0	X	X	X	X	0	1	S1
S0	X	X	X	X	1	0	S2
S1	X	X	X	X	X	X	SR
<b>S</b> 2	X	X	X	X	X	X	SR

A1	A2	A3	DISP1	DISP2	DISP3	DISP4	SELE1	SELE2	F1	F2	F3
0	0	0	0	0	0	0	X	X	0	0	0
0	0	0	0	0	0	1	X	X	0	0	0
0	0	0	0	0	1	0	X	X	0	0	1
0	0	0	0	0	1	1	X	X	0	0	0
0	0	0	0	1	0	0	X	X	0	0	0
0	0	0	0	1	0	1	X	X	0	0	0
0	0	0	0	1	1	0	X	X	0	0	0
0	0	0	0	1	1	1	X	X	0	0	0
0	0	0	1	0	0	1	X	X	0	0	0
0	0	0	1	0	1	0	X	X	0	0	0
0	0	0	1	0	1	1	X	X	0	0	0
0	0	0	1	1	0	0	X	X	0	0	0
0	0	0	1	1	0	1	X	X	0	0	0
0	0	0	1	1	1	0	X	X	0	0	0
0	0	0	1	1	1	1	X	X	0	0	0
0	0	0	1	0	0	0	X	X	0	0	0
0	0	1	X	X	X	X	0	0	0	0	1
0	0	1	X	X	X	X	1	1	0	0	1
0	0	1	X	X	X	X	0	1	0	1	0
0	0	1	X	X	X	X	1	0	0	1	1
0	1	0	X	X	X	X	X	X	0	0	0
0	1	1	X	X	X	X	X	X	0	0	0

A1	<b>A</b> 2	A3	G	P
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	0
0	0	1	0	0
0	0	1	1	0
0	0	1	0	1
0	1	0	0	0
0	1	1	0	0

A1 /	12	A3	DISP1	DISP2	DISP3	DISP4	SELE1	SELE2	=>	F1	F2	F3	G	P	A2' A3 DISP1 DISP2 DISP3' DISP4 SELE1 SELE2 + A1' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1'
0	0	1	X	X	X	X	0	1			1				SELE2' + Al' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1 SELE2' + Al' A2' A3 DISP1 DISP2 DISP3
0	0	1	X	X	X	X	1	0			1				DISP4' SELE1 SELE2 + A1' A2' A3 DISP1 DISP2 DISP3 DISP4 SELE1' SELE2' + A1' A2' A3 DISP1
0	0	1	X	X	X	X	1	X				1			DISP2 DISP3 DISP4 SELE1 SELE2' + A1' A2' A3 DISP1 DISP2 DISP3 DISP4 SELE1 SELE2;
0	0	1	X	X	X	X	X	0				1			G = A1' A2' A3 DISP1' DISP2' DISP3' DISP4' SELE1' SELE2 + A1' A2' A3 DISP1' DISP2' DISP3'
0	0	0	0	0	1	0	X	X				1			DISP4 SELE1' SELE2 + A1' A2' A3 DISP1' DISP2' DISP3 DISP4' SELE1' SELE2 + A1' A2' A3 DISP1'
0	0	1	X	X	X	X	0	1					1		DISP2' DISP3 DISP4 SELE1' SELE2 + A1' A2' A3 DISP1' DISP2 DISP3' DISP4' SELE1' SELE2 + A1'
0	0	1	X	X	X	X	1	0						1	A2' A3 DISP1' DISP2 DISP3' DISP4 SELE1' SELE2 + A1' A2' A3 DISP1' DISP2 DISP3 DISP4' SELE1'
															SELE2 + A1' A2' A3 DISP1' DISP2 DISP3 DISP4 SELE1' SELE2 + A1' A2' A3 DISP1 DISP2' DISP3'
															DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2' DISP3' DISP4 SELE1' SELE2 + A1' A2' A3 DISP1
															DISP2' DISP3 DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2' DISP3 DISP4 SELE1' SELE2 + A1'
															A2' A3 DISP1 DISP2 DISP3' DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2 DISP3' DISP4 SELE1'
															SELE2 + A1' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2 DISP3 DISP4
															SELE1' SELE2;
															P = Al' A2' A3 DISP1' DISP2' DISP3' DISP4' SELE1 SELE2' + A1' A2' A3 DISP1' DISP2' DISP3'
															DISP4 SELE1 SELE2' + A1' A2' A3 DISP1' DISP2' DISP3 DISP4' SELE1 SELE2' + A1' A2' A3 DISP1'
															DISP2' DISP3 DISP4 SELE1 SELE2' + Al' A2' A3 DISP1' DISP2 DISP3' DISP4' SELE1 SELE2' + Al'
															A2' A3 DISP1' DISP2 DISP3' DISP4 SELE1 SELE2' + A1' A2' A3 DISP1' DISP2 DISP3 DISP4' SELE1
															SELE2' + Al' A2' A3 DISP1' DISP2 DISP3 DISP4 SELE1 SELE2' + Al' A2' A3 DISP1 DISP2' DISP3'
															DISP4' SELE1 SELE2' + A1' A2' A3 DISP1 DISP2' DISP3' DISP4 SELE1 SELE2' + A1' A2' A3 DISP1
															DISP2' DISP3 DISP4' SELE1 SELE2' + A1' A2' A3 DISP1 DISP2' DISP3 DISP4 SELE1 SELE2' + A1'
															A2' A3 DISP1 DISP2 DISP3' DISP4' SELE1 SELE2' + A1' A2' A3 DISP1 DISP2 DISP3' DISP4 SELE1
															SELE2' + Al' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1 SELE2' + Al' A2' A3 DISP1 DISP2 DISP3
															DISP4 SELE1 SELE2';
															Minimized:
															F) = 0:
															F2 = A1' A2' A3 SELE1' SELE2 + A1' A2' A3 SELE1 SELE2';
															F3 = A1' A2' A3 SELE1 + A1' A2' A3 SELE2' + A1' A2' A3' DISP1' DISP2' DISP3 DISP4';
															G = A1' A2' A3 SELE1' SELE2;
															P = A1' A2' A3 SELEI SELEZ;
															1 11 10 10 10101 ,

## Ecuaciones Booleanas:

```
Minimized:
F1 = 0;
F2 = A1' A2' A3 SELE1' SELE2 + A1' A2' A3 SELE1 SELE2';
F3 = A1' A2' A3 SELE1 + A1' A2' A3 SELE2' + A1' A2' A3' DISP1' DISP2' DISP3 DISP4';
G = A1' A2' A3 SELE1' SELE2;
P = A1' A2' A3 SELE1 SELE2;
```

#### - Bebida 4

ACTUAL	DISP1	DISP2	DISP3	DISP4	SELE1	SELE2	FUTURO
SR	0	0	0	0	X	X	SR
SR	0	0	0	1	X	X	S0
SR	0	0	1	0	X	X	SR
SR	0	0	1	1	X	X	SR
SR	0	1	0	0	X	X	SR
SR	0	1	0	1	X	X	SR
SR	0	1	1	0	X	X	SR
SR	0	1	1	1	X	X	SR
SR	1	0	0	1	X	X	SR
SR	1	0	1	0	X	X	SR
SR	1	0	1	1	X	X	SR
SR	1	1	0	0	X	X	SR
SR	1	1	0	1	X	X	SR
SR	1	1	1	0	X	X	SR
SR	1	1	1	1	X	X	SR
SR	1	0	0	0	X	X	SR
S0	X	X	X	X	0	0	S0
S0	X	X	X	X	1	1	S0
S0	X	X	X	X	0	1	S1
S0	X	X	X	X	1	0	S2
S1	X	X	X	X	X	X	SR
S2	X	X	X	X	X	X	SR

A1	A2	A3	DISP1	DISP2	DISP3	DISP4	SELE1	SELE2	F1	F2	F3
0	0	0	0	0	0	0	X	X	0	0	0
0	0	0	0	0	0	1	X	X	0	0	0
0	0	0	0	0	1	0	X	X	0	0	0
0	0	0	0	0	1	1	X	X	0	0	0
0	0	0	0	1	0	0	X	X	0	0	0
0	0	0	0	1	0	1	X	X	0	0	0
0	0	0	0	1	1	0	X	X	0	0	0
0	0	0	0	1	1	1	X	X	0	0	0
0	0	0	1	0	0	1	X	X	0	0	0
0	0	0	1	0	1	0	X	X	0	0	0
0	0	0	1	0	1	1	X	X	0	0	0
0	0	0	1	1	0	0	X	X	0	0	0
0	0	0	1	1	0	1	X	X	0	0	0
0	0	0	1	1	1	0	X	X	0	0	0
0	0	0	1	1	1	1	X	X	0	0	0
0	0	0	1	0	0	0	X	X	0	0	1
0	0	1	X	X	X	X	0	0	0	0	1
0	0	1	X	X	X	X	1	1	0	0	1
0	0	1	X	X	X	X	0	1	0	1	0
0	0	1	X	X	X	X	1	0	0	1	1
0	1	0	X	X	X	X	X	X	0	0	0
0	1	1	X	X	X	X	X	X	0	0	0

Al	A2	A3	G	P
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	0
0	0	1	0	0
0	0	1	1	0
0	0	1	0	1
0	1	0	0	0
0	1	1	0	0

A1	A2	A3	DISP1	DISP2	DISP3	DISP4	SELE1	SELE2	=>	F1 F2	F3	G	P	A2' A3 DISP1 DISP2 DISP3' DISP4 SELE1 SELE2 + A1' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1'
0	0	1	X	X	X	X	0	1		- 1				SELE2' + Al' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1 SELE2' + Al' A2' A3 DISP1 DISP2 DISP3
0	0	1	X	X	X	X	1	0		1				DISP4' SELE1 SELE2 + A1' A2' A3 DISP1 DISP2 DISP3 DISP4 SELE1' SELE2' + A1' A2' A3 DISP1
0	0	1	X	X	X	X	1	X			1			DISP2 DISP3 DISP4 SELE1 SELE2' + A1' A2' A3 DISP1 DISP2 DISP3 DISP4 SELE1 SELE2;
0	0	1	X	X	X	X	X	0			1			G = Al' A2' A3 DISP1' DISP2' DISP3' DISP4' SELE1' SELE2 + Al' A2' A3 DISP1' DISP2' DISP3'
0	0	0	0	0	0	1	X	X			1			DISP4 SELE1' SELE2 + A1' A2' A3 DISP1' DISP2' DISP3 DISP4' SELE1' SELE2 + A1' A2' A3 DISP1'
0	0	1	X	X	X	X	0	1				1		DISP2' DISP3 DISP4 SELE1' SELE2 + A1' A2' A3 DISP1' DISP2 DISP3' DISP4' SELE1' SELE2 + A1'
0	0	1	X	X	X	X	1	0					1	A2' A3 DISP1' DISP2 DISP3' DISP4 SELE1' SELE2 + A1' A2' A3 DISP1' DISP2 DISP3 DISP4' SELE1'
														SELE2 + Al' A2' A3 DISP1' DISP2 DISP3 DISP4 SELE1' SELE2 + Al' A2' A3 DISP1 DISP2' DISP3'
														DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2' DISP3' DISP4 SELE1' SELE2 + A1' A2' A3 DISP1
														DISP2' DISP3 DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2' DISP3 DISP4 SELE1' SELE2 + A1'
														A2' A3 DISP1 DISP2 DISP3' DISP4' SELE1' SELE2 + A1' A2' A3 DISP1 DISP2 DISP3' DISP4 SELE1'
														SELE2 + Al' A2' A3 DISP1 DISP2 DISP3 DISP4' SELE1' SELE2 + Al' A2' A3 DISP1 DISP2 DISP3 DISP4
														SELE1' SELE2;
														P = A1' A2' A3 DISP1' DISP2' DISP3' DISP4' SELE1 SELE2' + A1' A2' A3 DISP1' DISP2' DISP3'
														DISP4 SELE1 SELE2' + A1' A2' A3 DISP1' DISP2' DISP3 DISP4' SELE1 SELE2' + A1' A2' A3 DISP1'
														DISP2' DISP3 DISP4 SELE1 SELE2' + A1' A2' A3 DISP1' DISP2 DISP3' DISP4' SELE1 SELE2' + A1'
														A2' A3 DISP1' DISP2 DISP3' DISP4 SELE1 SELE2' + A1' A2' A3 DISP1' DISP2 DISP3 DISP4' SELE1
														SELE2' + A1' A2' A3 DISP1' DISP2 DISP3 DISP4 SELE1 SELE2' + A1' A2' A3 DISP1 DISP2' DISP3' DISP4' SELE1 SELE2' + A1' A2' A3 DISP1 DISP2' DISP3' DISP4 SELE1 SELE2' + A1' A2' A3 DISP1
														DISP2' DISP3 DISP4' SELEI SELE2' + Al' A2' A3 DISP1 DISP2' DISP3 DISP3 DELEI SELE2' + Al' A2' A3 DISP1 DISP4' SELEI SELE2' + Al' A2' A3 DISP1 DISP3 DISP3 DISP3 SELEI SELE2' + Al'
														A2' A3 DISP1 DISP2 DISP3' DISP4' SELEI SELEI SELEI SELEI' + A1' A2' A3 DISP1 DISP2 DISP3 DISP4 SELEI
														SETES: + Al' AS DISPI DISPS DISPS SELECT SELECT AR AS DISPI
														DISP4 SELE1 SELE2':
														DISTA SEREI SEREA ,
														Minimized:
														F1 = 0;
														F2 = A1' A2' A3 SELE1' SELE2 + A1' A2' A3 SELE1 SELE2';
														F3 = A1' A2' A3 SELE1 + A1' A2' A3 SELE2' + A1' A2' A3' DISP1' DISP2' DISP3' DISP4 ;
														G = Al' A2' A3 SELE1' SELE2;
														P = Al' A2' A3 SELE1 SELE2';
														The state of the s

#### Ecuaciones Booleanas:

```
Minimized:
F1 = 0;
F2 = A1' A2' A3 SELE1' SELE2 + A1' A2' A3 SELE1 SELE2';
F3 = A1' A2' A3 SELE1 + A1' A2' A3 SELE2' + A1' A2' A3' DISP1' DISP2' DISP3' DISP4;
G = A1' A2' A3 SELE1' SELE2;
P = A1' A2' A3 SELE1 SELE2';
```

• Máquina expendedora de bebida elegida

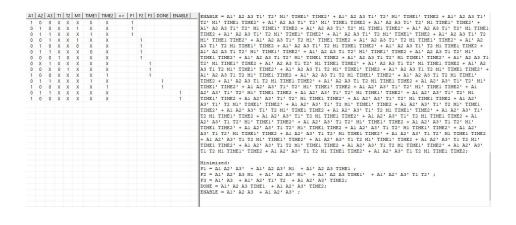
ACTUAL	P	G	M1	TIME1	TIME2	FUTURO
SR	0	0	X	X	X	SR
SR	1	1	X	X	X	SR
SR	0	1	X	X	X	S0
S0	X	X	0	X	X	S0
S0	X	X	1	X	X	S2
S2	X	X	X	0	X	S2
S2	X	X	X	1	X	S4
SR	1	0	X	X	X	S1
S1	X	X	0	X	X	S1
S1	X	X	1	X	X	S3
S3	X	X	X	X	0	S3
S3	X	X	X	X	1	S4
S4	X	X	X	X	X	SR

A1	A2	A3	P	G	M1	TIME1	TIME2	F1	F2
0	0	0	0	0	X	X	X	0	0
0	0	0	1	1	X	X	X	0	0
0	0	0	0	1	X	X	X	0	0
0	0	1	X	X	0	X	X	0	0
0	0	1	X	X	1	X	X	0	1
0	1	1	X	X	X	0	X	0	1
0	1	1	X	X	X	1	X	1	0
0	0	0	1	0	X	X	X	0	1
0	1	0	X	X	0	X	X	0	1
0	1	0	X	X	1	X	X	1	0
1	0	0	X	X	X	X	0	1	0
1	0	0	X	X	X	X	1	1	0
1	0	1	X	X	X	X	X	0	0

#### Tabla de salidas:

A1	A2	A3	DONE	ENABLE
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	0
0	0	1	0	0
0	1	1	0	1
0	1	1	1	1
0	0	0	0	0
0	1	0	0	0
0	1	0	0	0
1	0	0	0	1
1	0	0	1	1
1	0	1	0	0

#### Tabla obtenida con la herramienta Logic Friday:



#### Ecuaciones Booleanas:

#### Minimized:

```
F1 = A1 A2' A3' + A1' A2 A3' M1 + A1' A2 A3 TIME1;
F2 = A1' A2' A3 M1 + A1' A2 A3' M1' + A1' A2 A3 TIME1' + A1' A2' A3' T1 T2';
F3 = A1' A3 + A1' A2' T1' T2 + A1 A2' A3' TIME2;
DONE = A1' A2 A3 TIME1 + A1 A2' A3' TIME2;
ENABLE = A1' A2 A3 + A1 A2' A3';
```

#### Diagrama de Timing 1 - Interfaz de Bienvenida y selección de Menú

