BK-Airbus

Feature:

- **Hight performance**

  Crystal: 16MHz

  Power: 5VDC – 0.6W minimun

- **Low power consume**

  Less than 0.6w in DC5V

  temperature 25oC

- **Multiple mode operation**

  6 mode operation and 5 menu option in Lcd interface.

- **User interface lcd16x2**

  User interface with lcd and keypad to choose option menu.

- **Dual keypad scan**

  Dual scan keypad, priority to keypad inside cockpit.

- **Reliable function**

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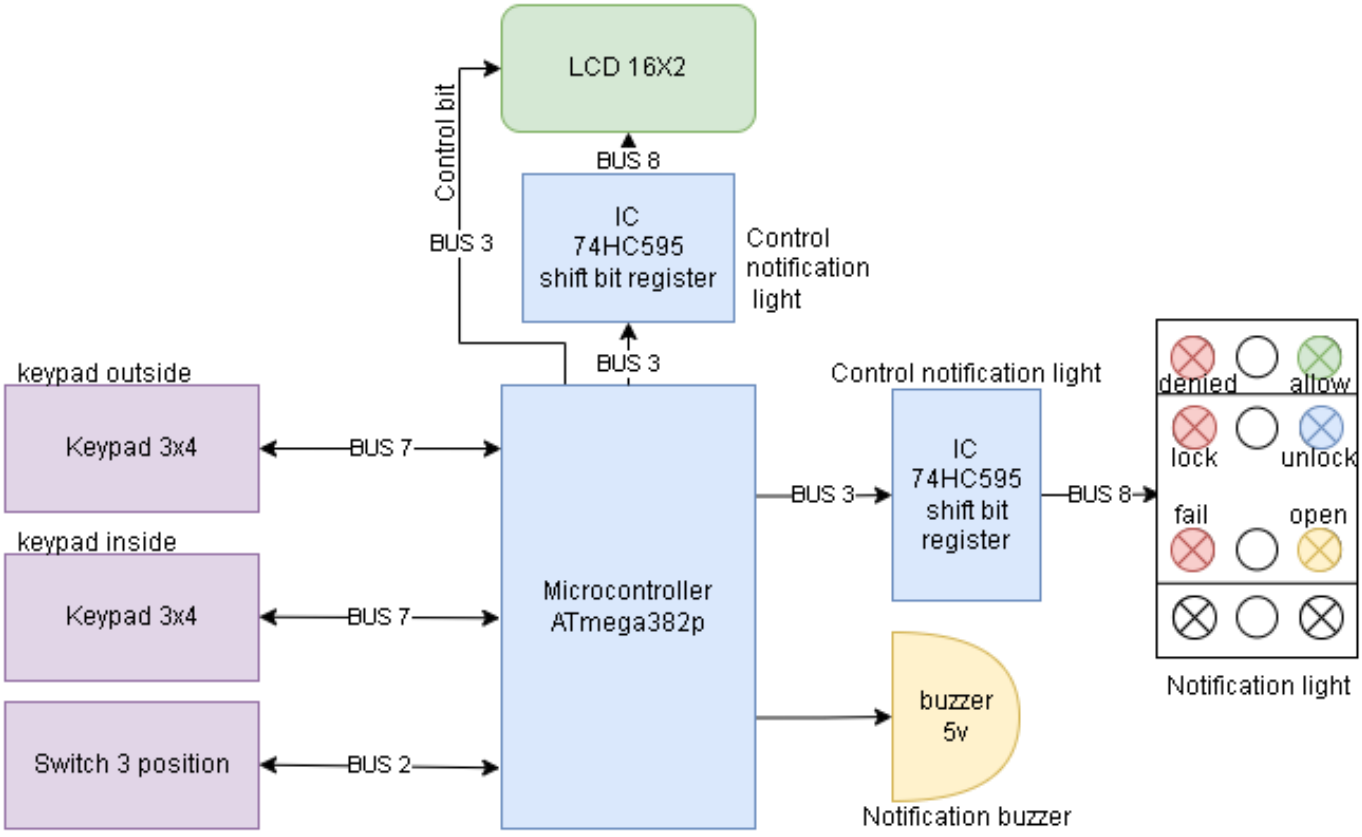
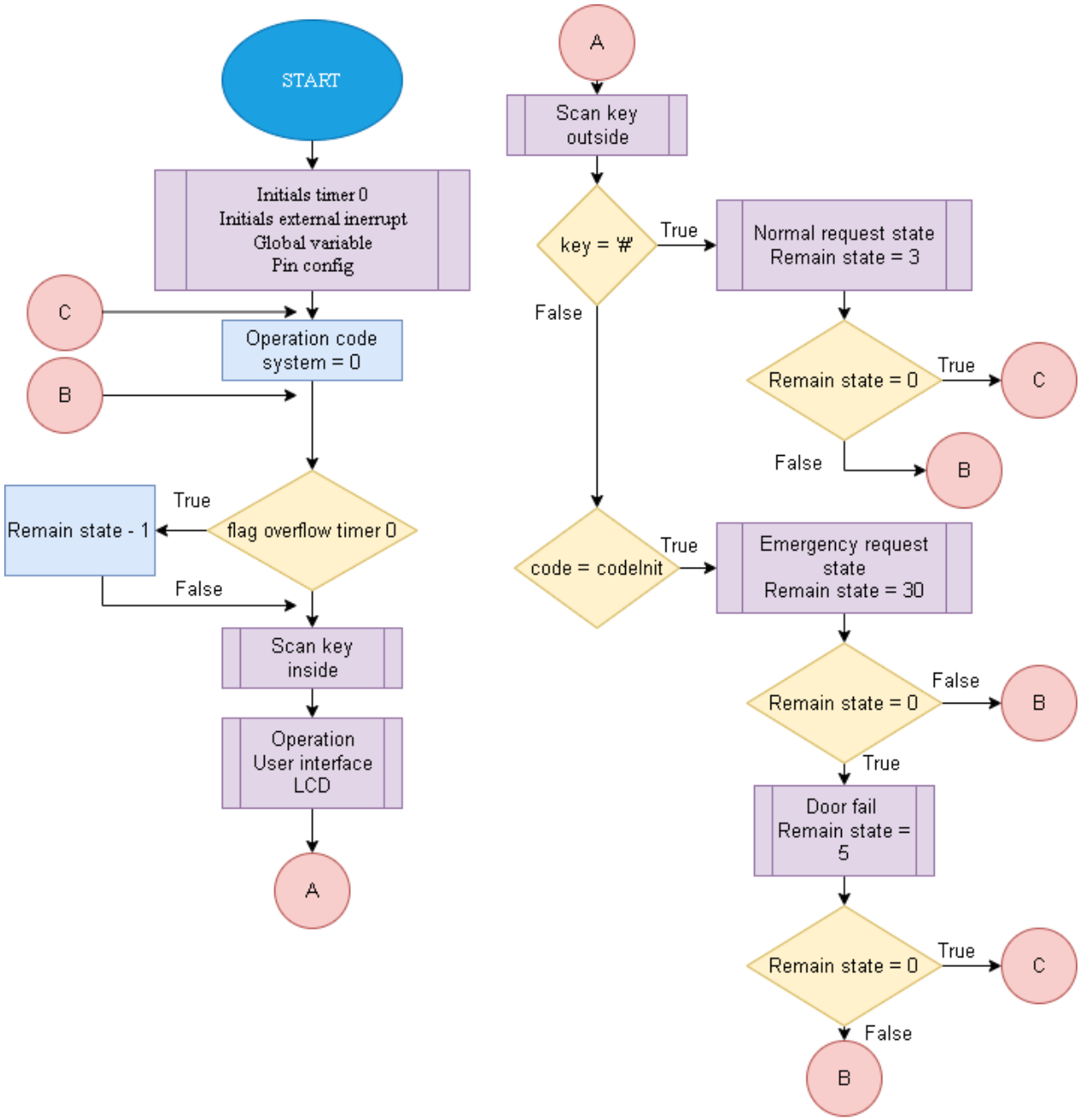
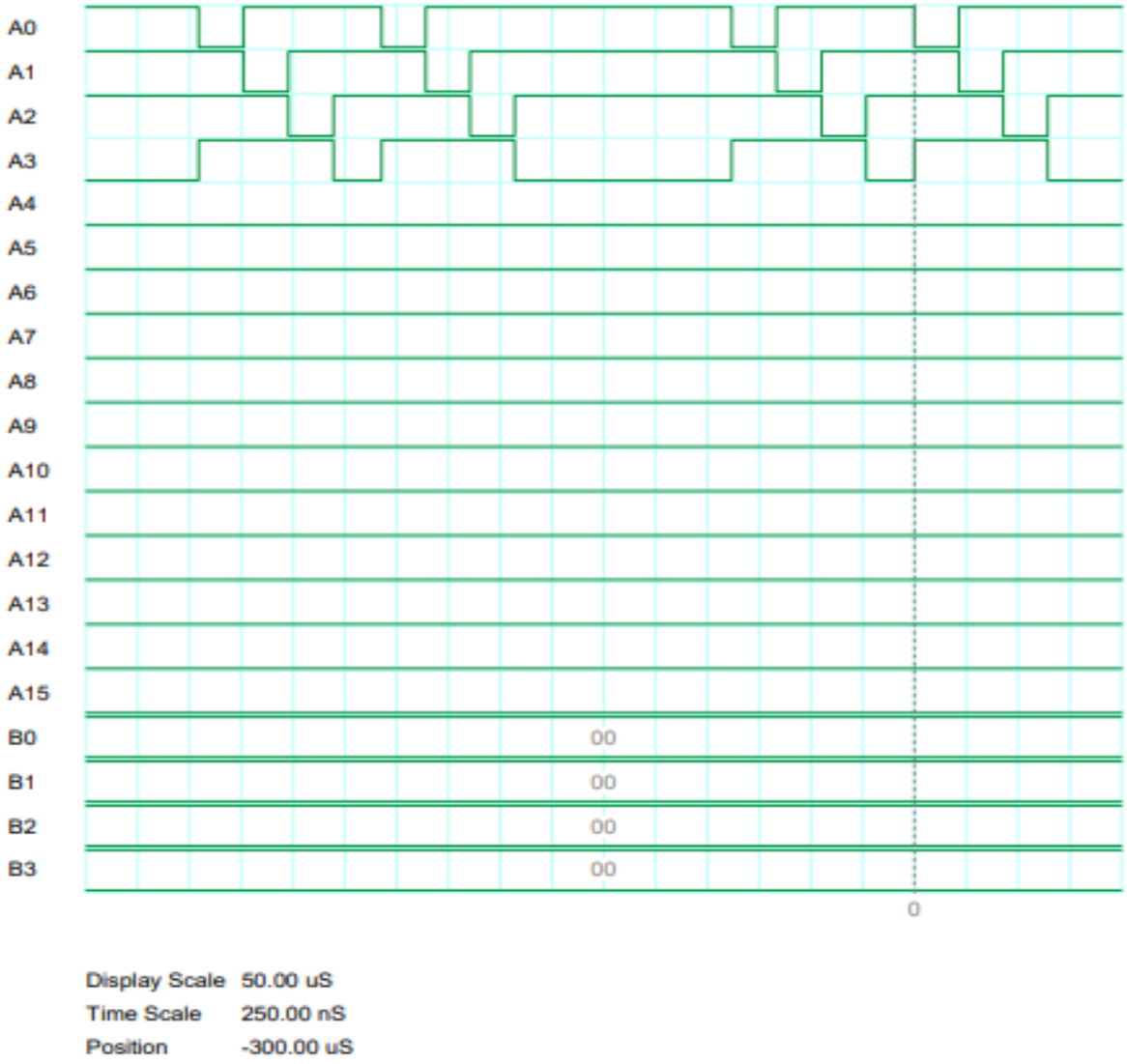
1. Hardware block diagram



2. Summary flowchart software

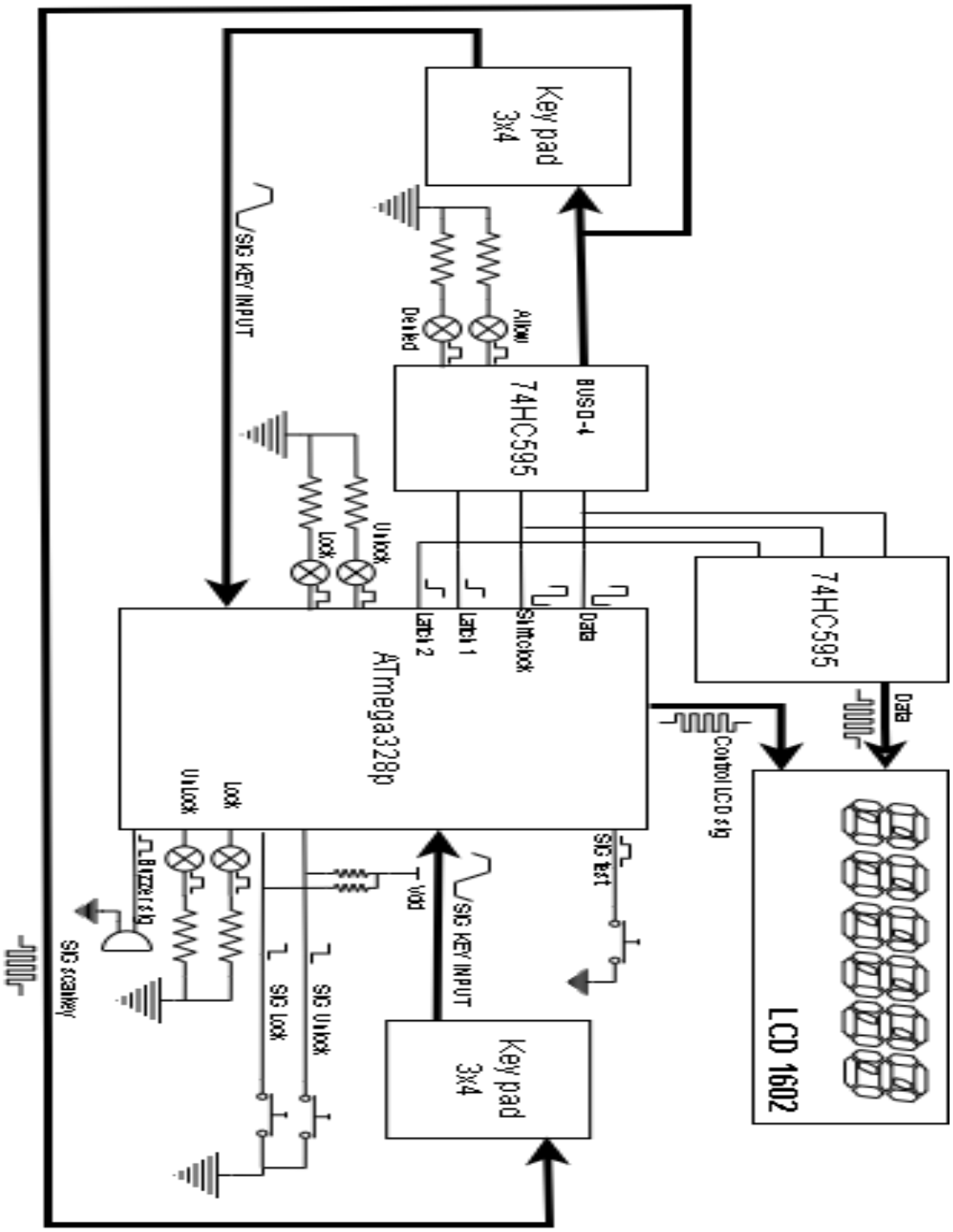


3. Signal scan keypad



NOTE: Frequency scan keypad inside and outside about 2KHz, so minimum time remain push keypad is 0.5ms.

4. Details hardware design



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Operation mode: Standard mode

Num	Mode name	Description	Buzzer	Allow	Denied	Open	Fail	Door
1	Normal request	This mode is the most common, someone outside press # to request enter the cockpit.	Yes	No	No	No	No	Lock
2	Allow Enter Cockpit	When pilot press button unlock door to notify allow someone outside can enter cockpit.	No	yes	No	yes	No	Unlock
3	Denied Enter Cockpit	When pilot press button lock door to notify and denied any request enter cockpit. In this mode any request enter can't be sent to cockpit.	No	No	Yes	No	No	Lock
4	Emergency Request Enter cockpit	When one in outside haven't received any repone feedback from cockpit then they enter Pin in keypad outside to send special request enter cockpit.	Yes	blinking	No	blinking	No	Lock

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Operation mode: Standard

Num	Mode name	Description	Buzzer	Allow	Denied	Open	Fail	Door
5	Security system failure	This special mode is transferred from mode 4 (Emergency request enter cockpit) when timeout mode (30 seccond) and it still haven't any feedback (press lock door) from pilot	No	Yes	No	Yes	Yes	Unlock
6	Test system interface	This mode usually uses as soon as pilot enter cockpit by press button test	Yes	Yes	Yes	Yes	Yes	Lock and unlock[1]
7	Strick mode	This mode often be unusable. If it in this mode you can't send any request to cockpit. This mode can active by select mode in LCD.	No	No	No	No	No	Lock

[1] NOTE: Only led notification door lock/unlock active, door is still LOCK.

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Operation mode: Extended

Num	Mode name	Description
1	Test keypad and button	This mode can be active by select in LCD, usually used by engineer to check health of both keypad inside and keypad outside. Check health of button lock door and unlock door. Usually be combined with test system interface mode.
2	Test LCD display	This mode can be active by select in LCD, usually used by engineer to check health of LCD display, this mode operate manually, pilot check display by their eye
3	Report health system	This mode use information from 2 mode above to create a report to notify pilot about status health of system suck as keypad system, button system or display system.
…	And more some extended operation mode	-When system starting from cold and dark mode. System allow to check version or system. -Auto turn off display LCD when it is not in use -Print report or use SPI to send a report to other system.[2]

[2] NOTE: This version no other system yet, so report only send to PC by SPI (Serial protocol interface)

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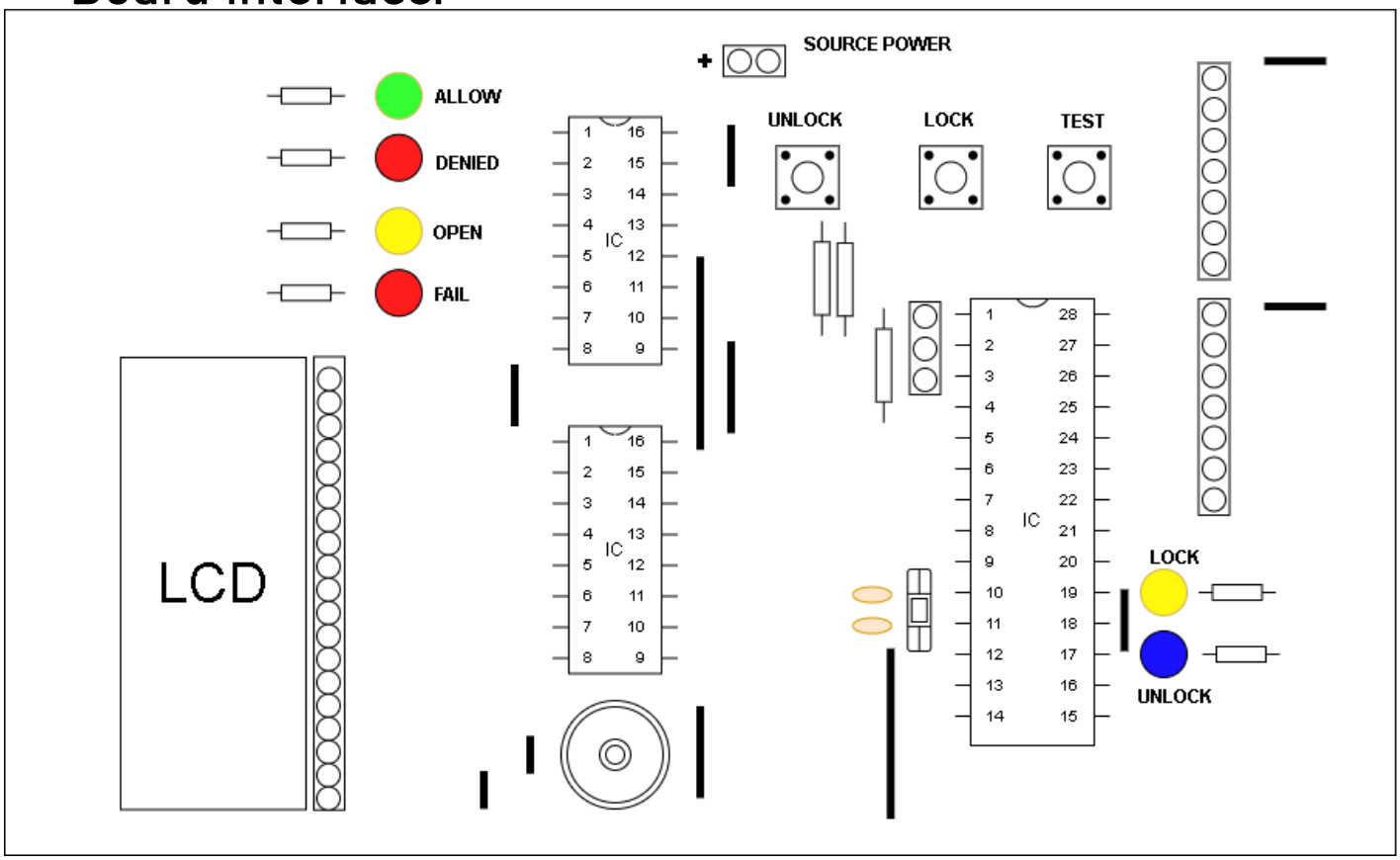
Board interface:



- Allow led is installed in outside cockpit to notify one who want to enter cockpit, if Allow is active, you can enter cockpit door unlock. (Green led)
- Denied led is also installed in outside cockpit. If this led is active, you can't enter cockpit (your request is denied) and you can't send any other request. (Red led)
- Open led is installed inside cockpit to notify pilot status of door. If this led is active, door is opening. (Yellow led)
- Fail led is also installed inside cockpit to notify pilot status of system. If this led is active, System security door is failed (door is unlock by action from outside), door is opening. (Red Led)
- Lock/unlock led is present status of door. If led lock is active, door is locking else led unlock is active, door is unlocking (Yellow/blue led)

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Information design

STT	Full name	Status	Descrition
1	Nguyen Thanh Toan	Fullstack Student	Probationary
2	Nguyen Anh Dao	Hardware Student	Probationary
3	Nguyen Minh Quang	Software Student	Probationary
4	Nguyen Minh Nghia	Hardware Student	Probationary
5	...	...	...

Prototype contact

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Note: This is open source. If you want contribute please follow link

github.com/nttoan-khiem/bkAirbus

or scan QR code in below. To access open source code.