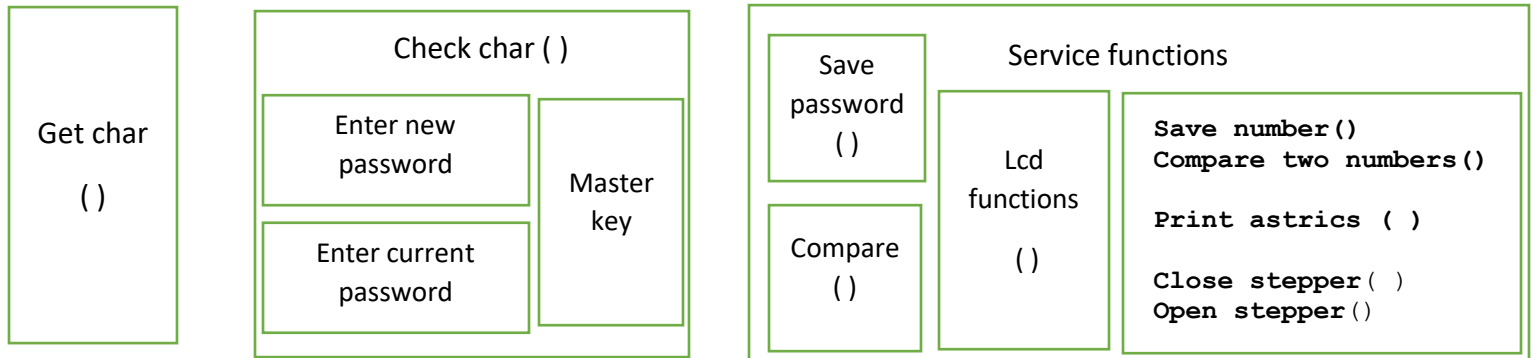


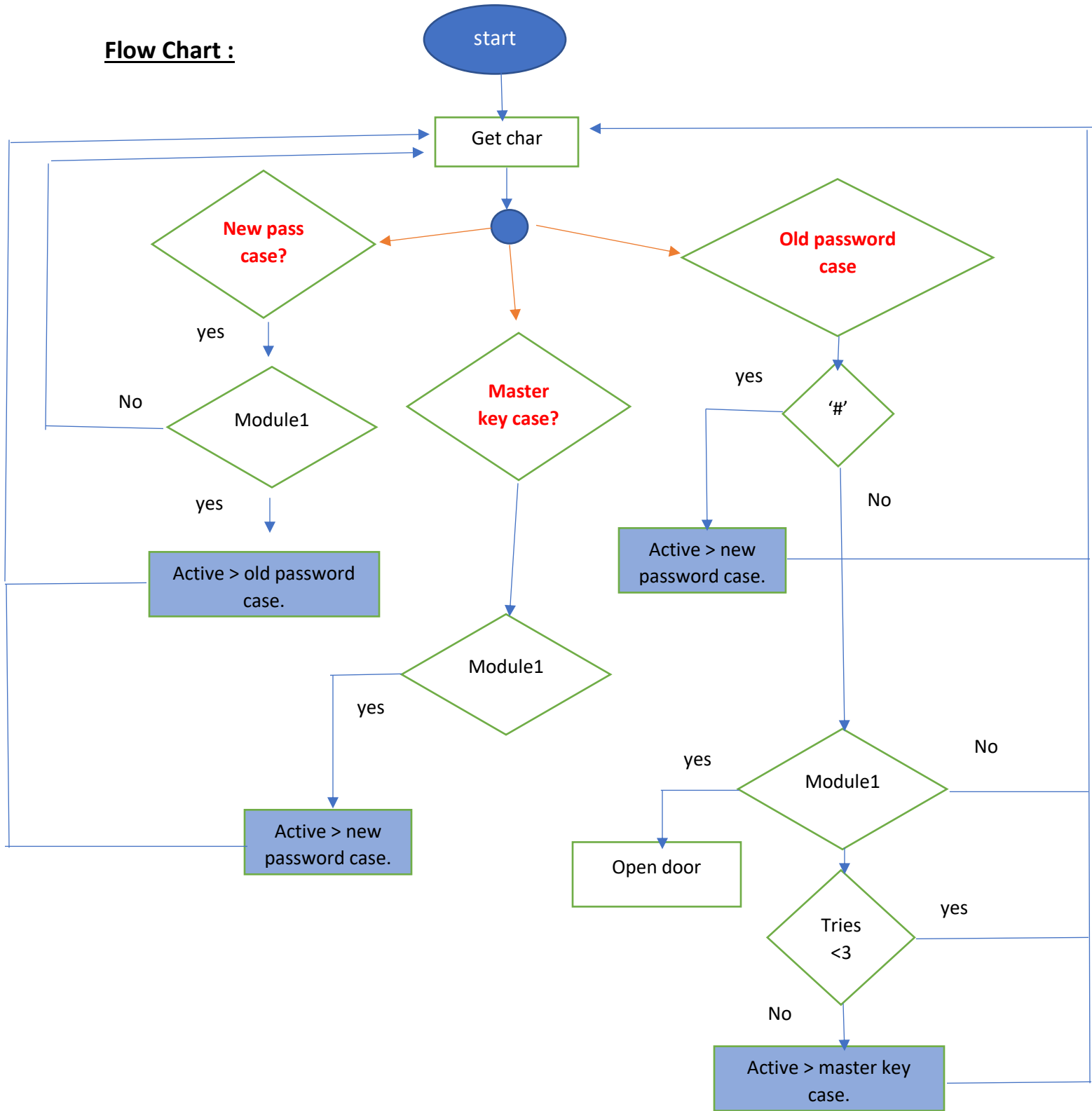
Safe_lock();



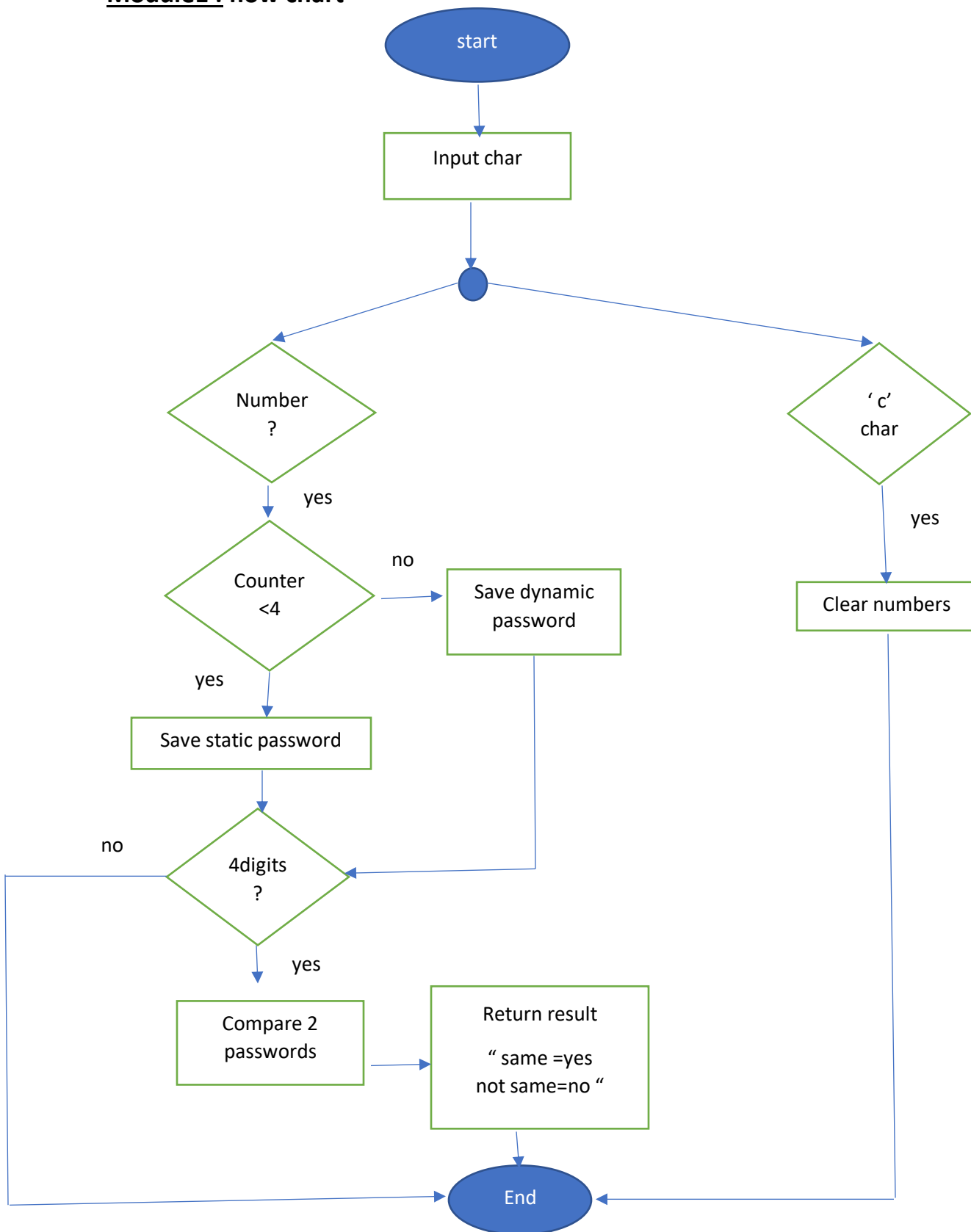
Lock functions:

- lock_init()
- safe_lock()
- Get_char()
- Check_char()
- save_Password()
- compare()
- Compare_two_Passwords()
- save_number()
- clear()
- print_astrecs()
- close_stepper()
- open_stepper()

Flow Chart :



Module1 : flow chart



Test cases :

Case1:

TEST CASE	Enter valid cases of passwords
TEST STEPS	<ul style="list-style-type: none">• Enter new password “numbers”• Enter correct confirm password “numbers”• Enter correct old password
EXPECTED RESULT	Open motor -> wait 5s -> close motor -> wait 3s -> return to “ enter old password case”
TEST SUITE	New password
STATE	pass
ACTUAL RESULT	Same as expected

Case2:

TEST CASE	Enter invalid confirm password
TEST STEPS	<ul style="list-style-type: none">• Enter new password “numbers”• Enter wrong confirm password “numbers”
EXPECTED RESULT	Ask for new password
TEST SUITE	New password
STATE	pass
ACTUAL RESULT	Same as expected

Case3:

TEST CASE	Enter valid cases of passwords then invalid password
TEST STEPS	<ul style="list-style-type: none"> • Enter new password “numbers” • Enter correct confirm password “numbers” • Enter wrong old password 2 times • Enter correct old password in the third try • Wait the motor to close • Enter wrong password in the old password
EXPECTED RESULT	Enter old password -> Try again -> Open stepper -> wait 5s -> close stepper -> wait 3s -> return to “ enter old password case” -> Try again
TEST SUITE	Old password
STATE	Fail
ACTUAL RESULT	<p>The lock asks directly for the master key without try again.</p> <p>Enter old password -> Try again -> Open motor -> wait 5s -> close motor -> wait 3s -> return to “ enter old password case” -> enter master key</p>

Case4:

TEST CASE	Enter invalid new password
TEST STEPS	<ul style="list-style-type: none"> • Enter new password “non-numbers”
EXPECTED RESULT	No thing written on the LCD
TEST SUITE	New password
STATE	pass
ACTUAL RESULT	Same as expected

Case5: **Important**

TEST CASE	Enter invalid new password
TEST STEPS	<ul style="list-style-type: none">• Enter new password “12A3”
EXPECTED RESULT	The system will display “12 ” then it will wait the next number “3” and display “123 ” and will do nothing waiting the fourth number.
TEST SUITE	New password
STATE	pass
ACTUAL RESULT	Same as expected

Case6:

TEST CASE	Enter valid cases of passwords then try wrong password
TEST STEPS	<ul style="list-style-type: none">• Enter new password “numbers”• Enter correct confirm password “numbers”• Enter wrong password-> second wrong try -> third wrong try
EXPECTED RESULT	Try again->try again -> try again -> ask for master key “stucked” till enter the master key
TEST SUITE	Master key
STATE	pass
ACTUAL RESULT	Same as expected

Case7:

TEST CASE	Master key
TEST STEPS	<ul style="list-style-type: none">• Enter new password “numbers”• Enter correct confirm password “numbers”• Enter wrong password-> second wrong try -> third wrong try• Enter the master key
EXPECTED RESULT	Enter new password
TEST SUITE	Master key
STATE	pass
ACTUAL RESULT	Same as expected

Summary for the variables :

1. **Char_input** : uint8 to save the current input from keypad

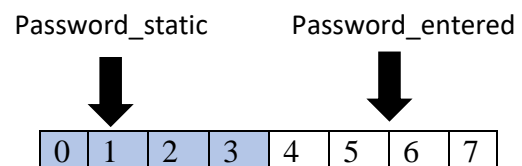
2. **Counter** : uint8

the first 4 counts used with the
static password

the second 4 counts used with the entered
password

the 8 th count : compare the static password with the entered password

3. **Password_static** : uint8



In the “enter new password” case: save the new password on it.
In the “master key” case : save the value of the master key on it.

4. Password_entered :uint8

In the “enter new password” case: save the confirm password on it.
In the “old password” case : save the value of the old password on it.

5. Compare_res_flag :uint8

Equal 0 if the 2 passwords are the same“ **Password_static - Password_entered**”
Equal 1 if the 2 passwords are not the same“ **Password_static - Password_entered**”

6. Number_of_tries :uint8

Count the tries to enter wrong password

7. Enter_new_pass: uint8

Flag to detect the move from the “old password”case to “enter new password”

8. Lcd_index: uint8

Equal to 3 ... the start position of the numbers on the LCD