

Digital Lock

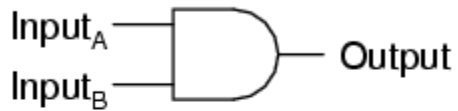
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Pratik Pingale

What is Digital Lock?

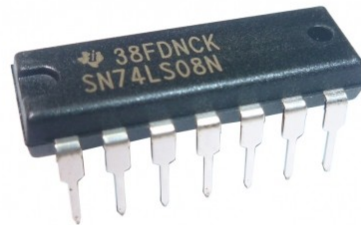
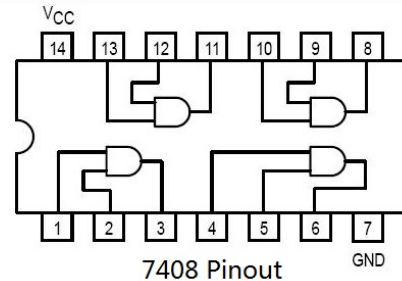
- Due to the advancement of science and technology throughout the world, there is a consequent increase in the rate and sophistication of crime.
- As a result, it is necessary to ensure security of oneself and one's valuable belongings.
- Even with the use of mechanical locks, the crime rate still has increased due to the fact that these locks are easily broken.
- Consequently, there is a need for other types of locks especially electronic one.
- The use of electronic combination locks in modern day technology cannot be overemphasized.
- They prevent losses to theft, carelessness e.t.c. Also being that they are electronically powered, they provide a better and safer security system than all other locks.
- So a Digital Lock or an Electronic Lock is a locking device which operates by means of electric current

Gates used in Digital Lock

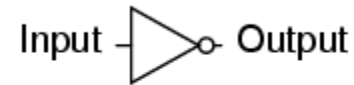
2-input AND gate



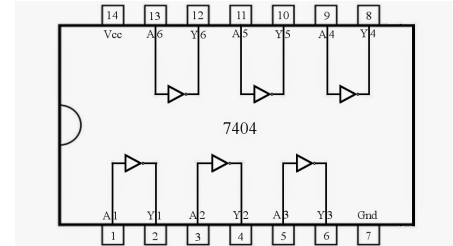
A	B	Output
0	0	0
0	1	0
1	0	0
1	1	1



NOT gate truth table



Input	Output
0	1
1	0



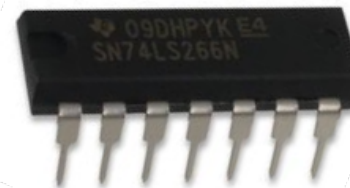
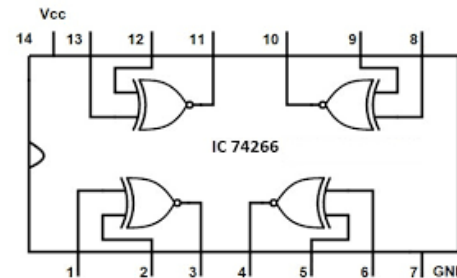
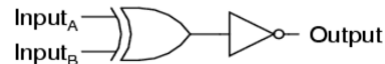
AND Gate

Exclusive-NOR gate



A	B	Output
0	0	1
0	1	0
1	0	0
1	1	1

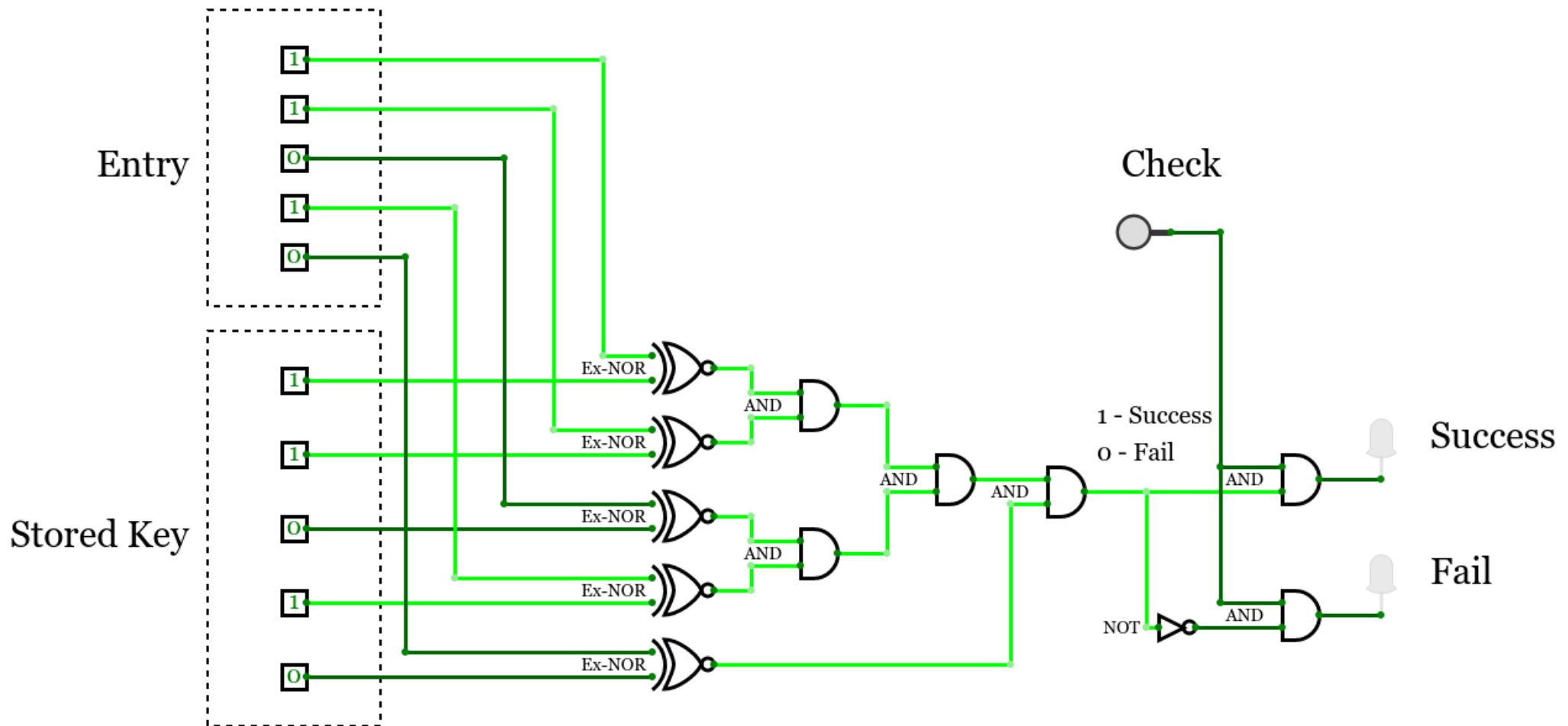
Equivalent gate circuit



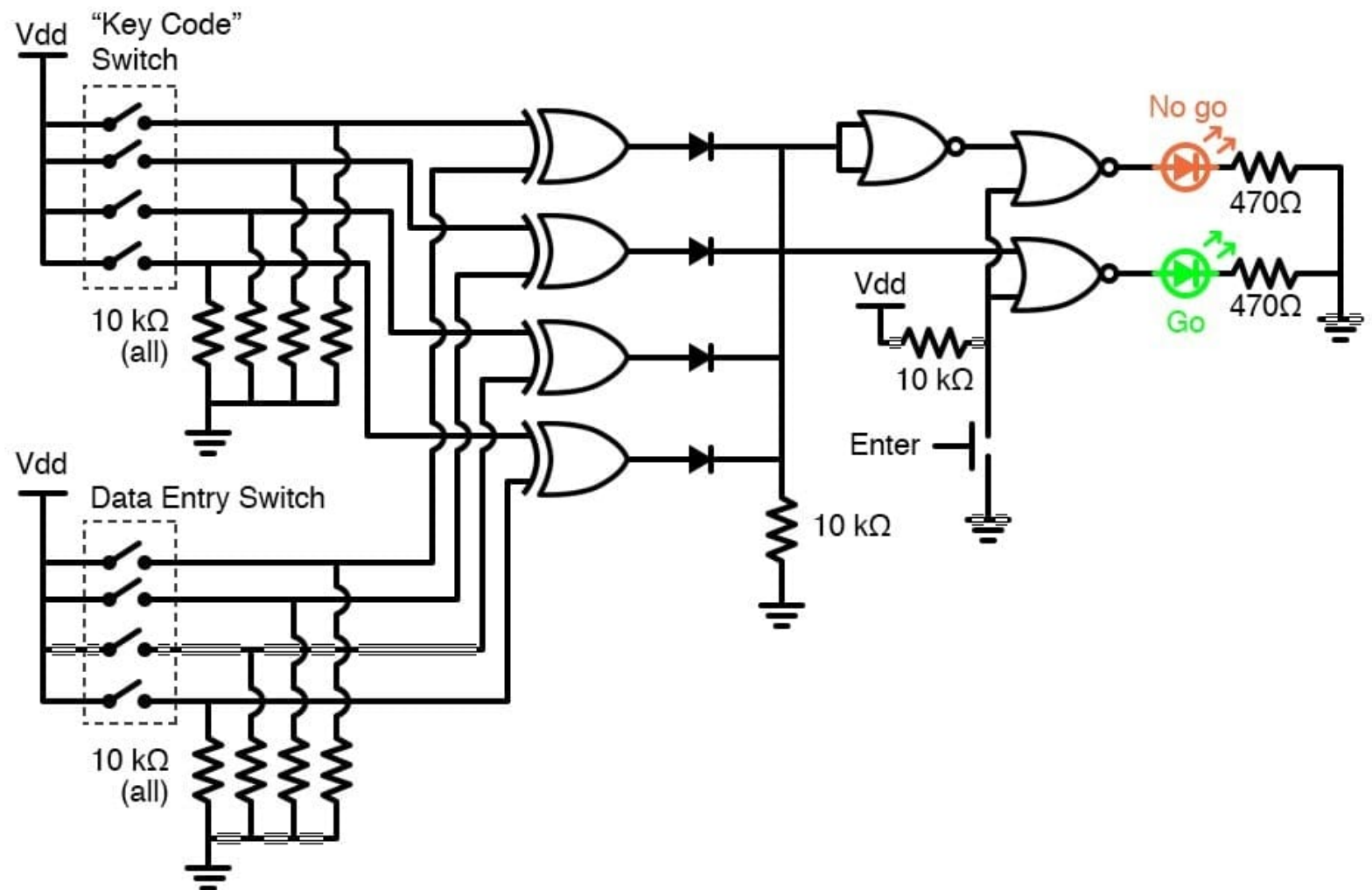
NOT Gate

Ex-NOR Gate

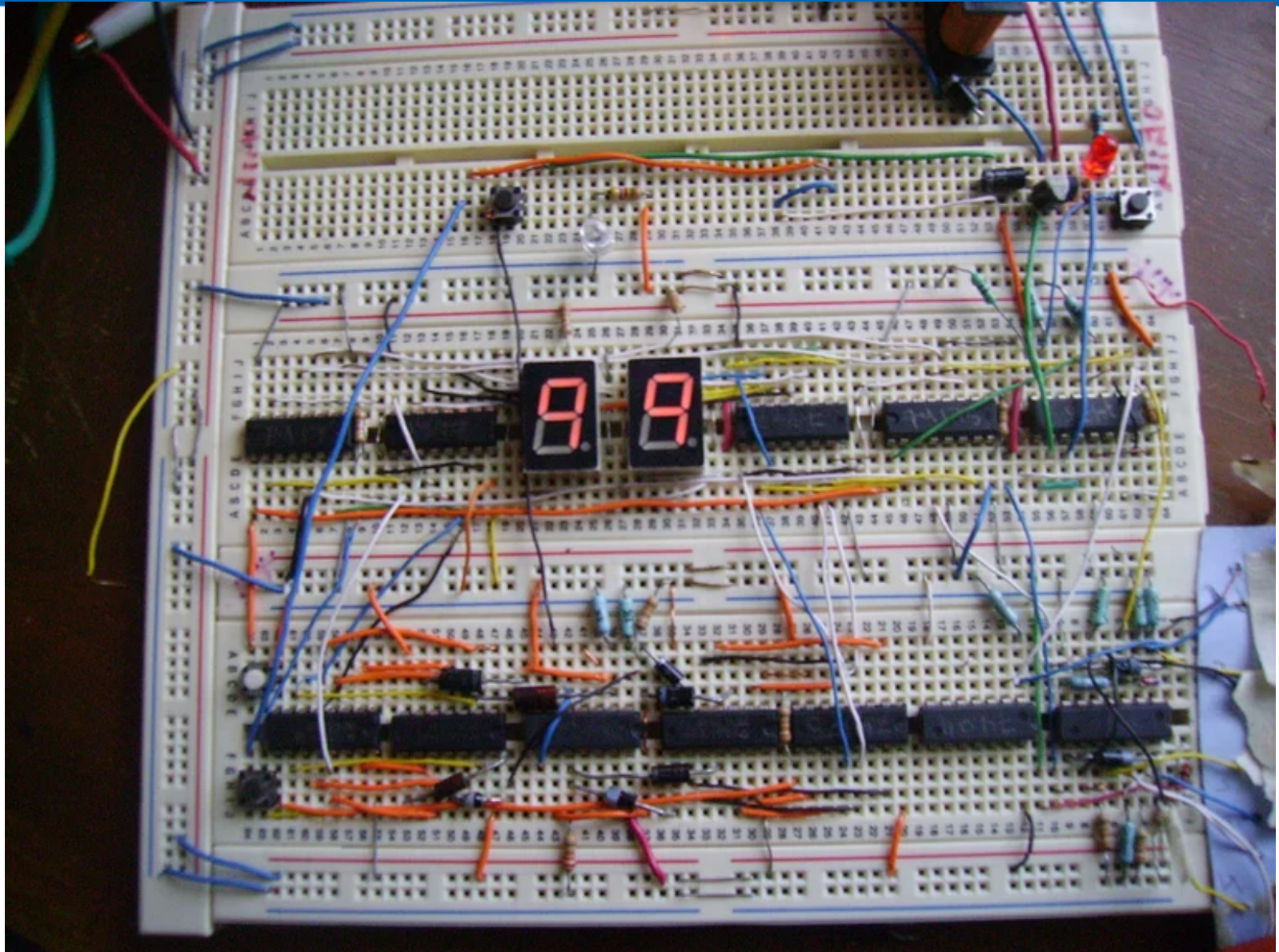
Circuit Diagram



Circuit Diagram



Digital Lock on Breadboard



Advantages of Digital Lock

1. Don't need a key

These locks eliminate the need of keys. They are quite convenient as one doesn't need to carry a set of keys along with them everywhere. The only thing needed is to remember the pin code that will be entered on the lock keypad to open up the door.

2. Tough to break

Biometric locks are quite hard to break-in by intruders and burglars. If you have installed a biometric or digital lock, do remain ensured that your property and belongings are safe and secure. The other main benefit is that the doors close up automatically, in case, you forget closing them.

3. Maintenance free

Digital locks are meant to last for years with a single battery and without any repairs. Since they doesn't require hardware closing mechanisms, they are likely to last longer without any risks of damage or wears.

Disadvantages of Digital Lock

1. Don't share the pin code

These locks are risky to operate during emergency situations as one will need to share the security code, in case there's a relative waiting outside and you are not at home. Before sharing the digital code, do make sure that the person on the other side is trustworthy.

2. Power failure

Digital locks run with single battery or operate with the help of electricity. The battery tends to last for years, but in case the medium is electricity, the lock won't be able to operate during power shut offs. You may get locked out of your home in the absence of electricity.

3. Forgetful

There are possibilities that a person may forget the unlocking pin code of the lock. One won't be able to access a door without a password and has to get the lock reprogrammed by a skilled emergency locksmith.