

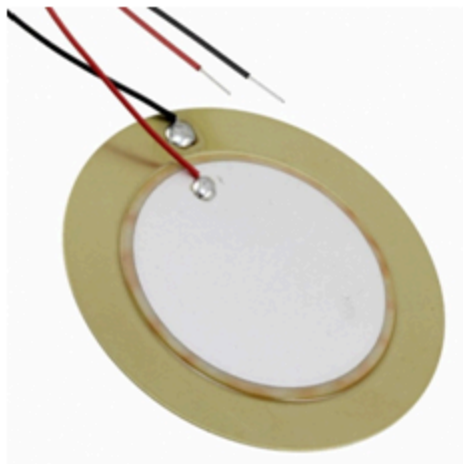
Buzzer

- **Buzzer** is an electronic device commonly used to produce sound.
- A **buzzer** or **beeper** may be mechanical, electromechanical, or piezoelectric.
- Typical uses of buzzers or beepers include alarm devices, timers, and confirmation of user input such as a mouse click or keystroke.



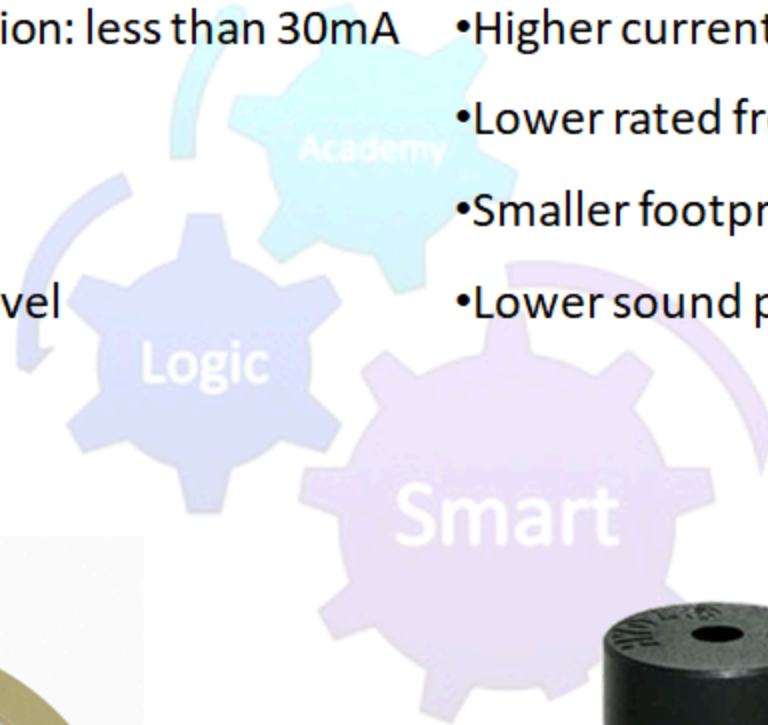
Piezo Buzzer Characteristics

- Wide operating voltage: 3~250V
- Lower current consumption: less than 30mA
- Higher rated frequency
- Larger footprint
- Higher sound pressure level



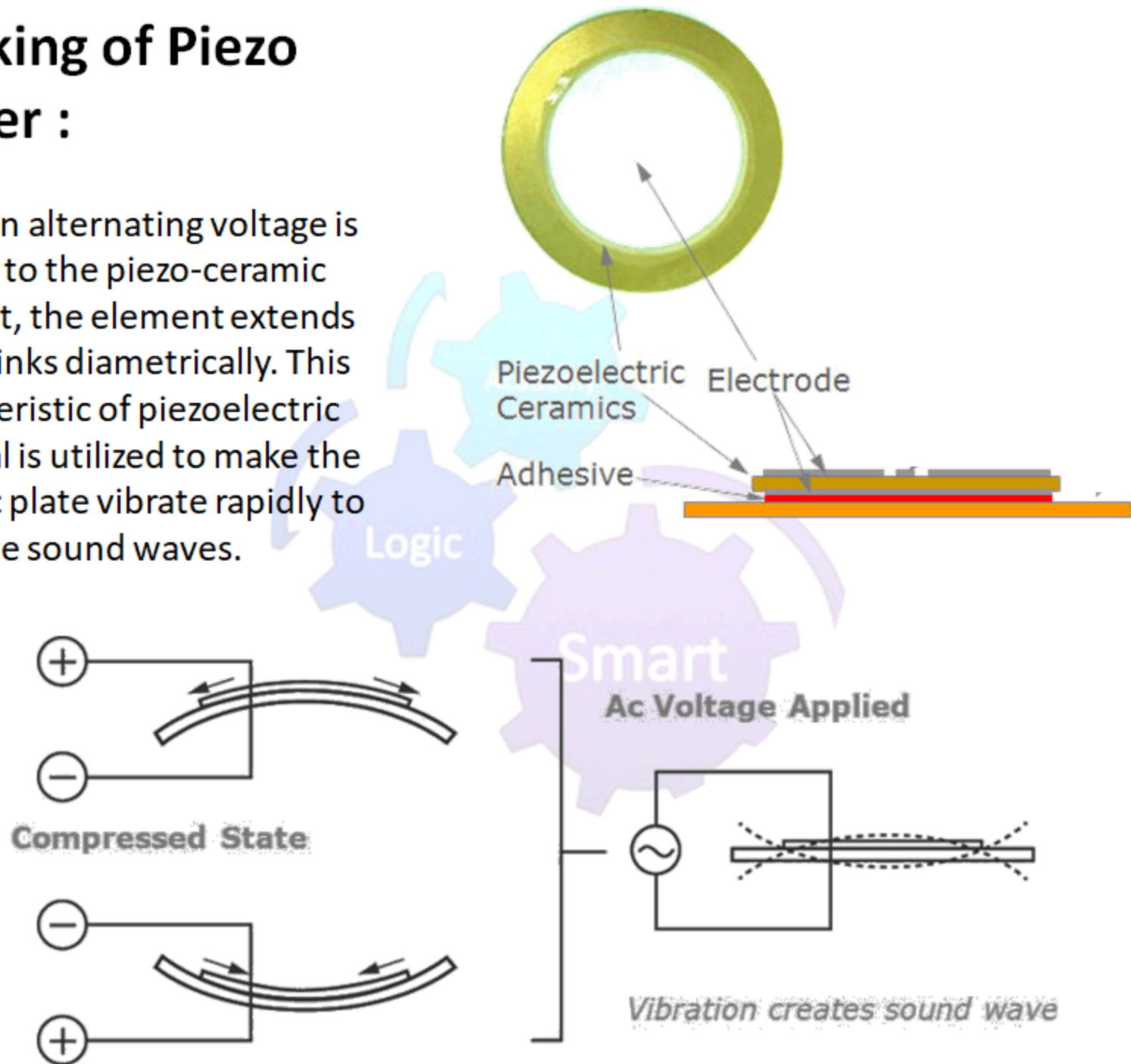
Magnetic Buzzer Characteristics

- Narrow operating voltage: 1~16V
- Higher current consumption: 30~100mA
- Lower rated frequency
- Smaller footprint
- Lower sound pressure level



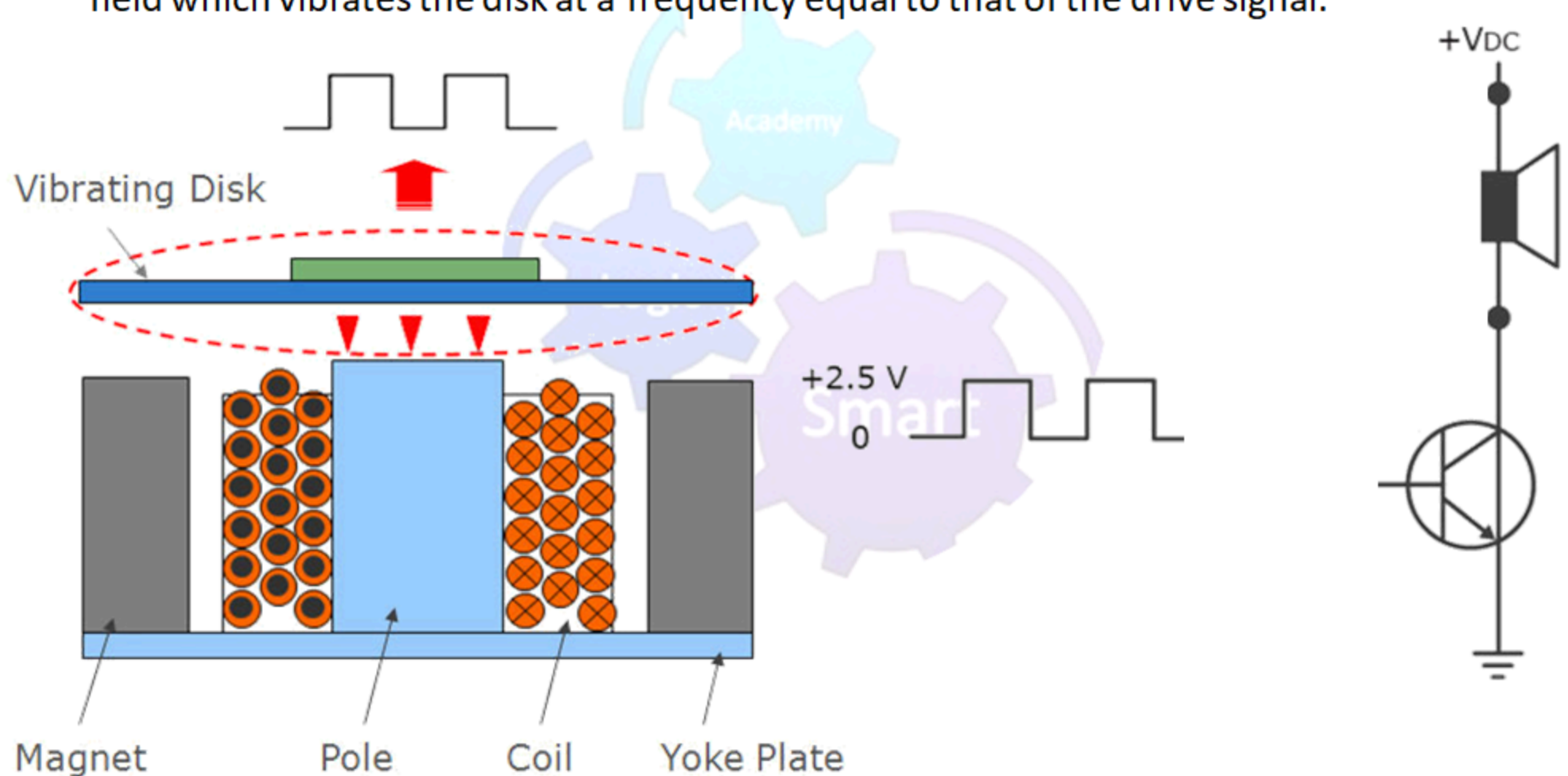
Working of Piezo Buzzer :

When an alternating voltage is applied to the piezo-ceramic element, the element extends and shrinks diametrically. This characteristic of piezoelectric material is utilized to make the ceramic plate vibrate rapidly to generate sound waves.



Working Magnetic Buzzer :

The vibrating disk in a magnetic buzzer is attracted to the pole by the magnetic field. When an oscillating signal is moved through the coil, it produces a fluctuating magnetic field which vibrates the disk at a frequency equal to that of the drive signal.



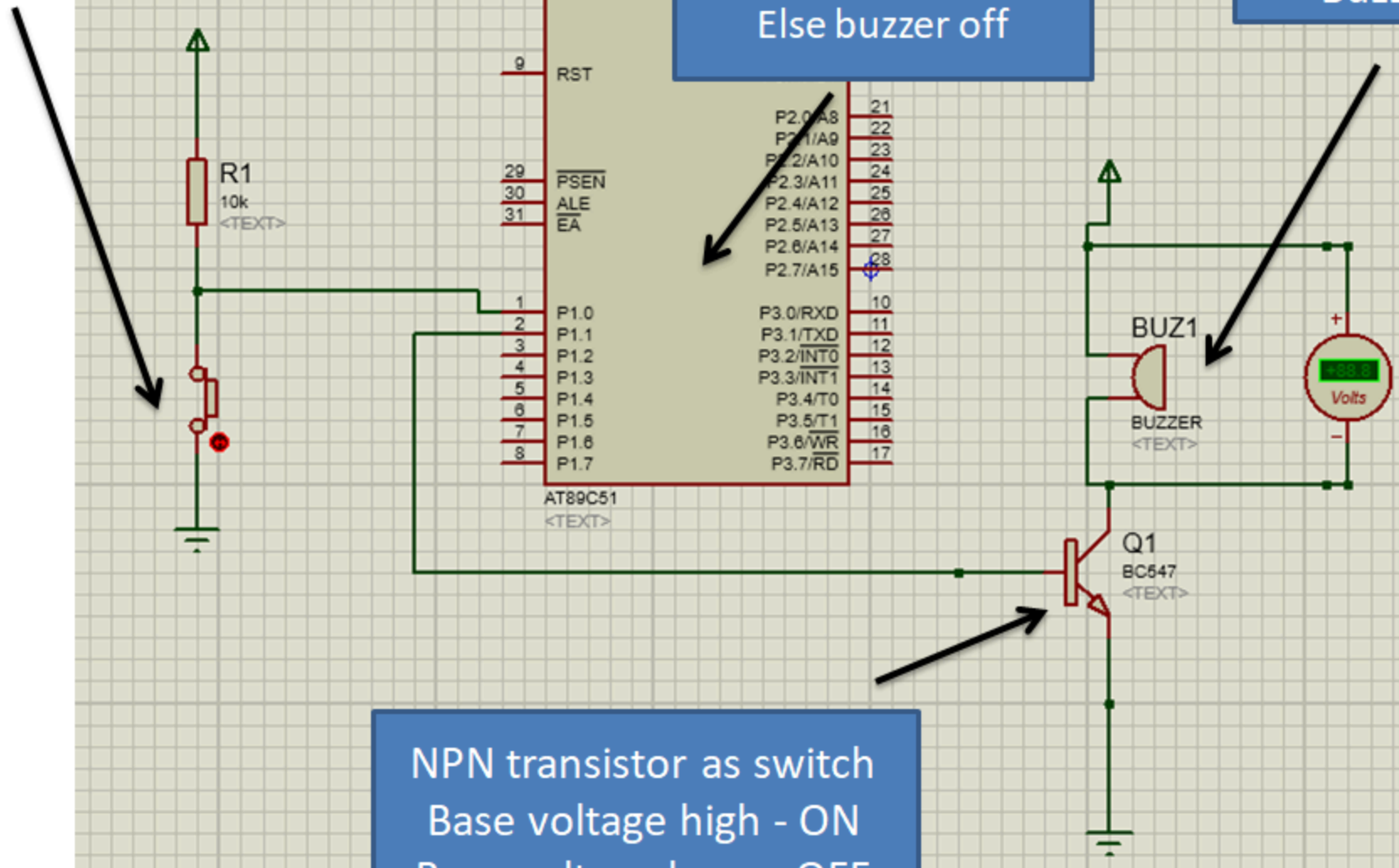
Push Button

Switch pressed - P1.0 = 0
Switch released - P1.0 = 1

Logic:

If Switch pressed
Beep buzzer 3 times
with interval of 1 sec
Else buzzer off

Buzzer



NPN transistor as switch
Base voltage high - ON
Base voltage low - OFF

```
// blink led P1
```

```
#include<reg52.h>
```

```
sbit SW=P1^0;  
sbit buzzer=P1^1;
```

```
void ms_delay( unsigned int time);
```

```
void main()
```

```
{
```

```
    SW = 1;  
    buzzer = 0;
```

```
    while(1)
```

```
    {
```

```
        if (SW == 0)
```

```
        {
```

```
            buzzer=1; //on Buzzer  
            ms_delay(1000); // delay 1s  
            buzzer=0; // off Buzzer  
            ms_delay(1000);  
            buzzer=1; //on Buzzer  
            ms_delay(1000); // delay 1s  
            buzzer=0; // off Buzzer  
            ms_delay(1000); // delay 1s  
            buzzer=1; // on Buzzer  
            ms_delay(1000); // delay 1s  
            buzzer=0; // off Buzzer  
            ms_delay(1000); // delay 1s
```

```
        }
```

```
        else
```

```
        {
```

```
            buzzer=0; // off Buzzer
```

```
        }
```

```
    }
```

```
}
```

```
void ms_delay( unsigned int time)
```

```
{
```

```
    unsigned int i,j;
```

```
    //time X 1ms
```

```
    for(i=0;i<time;i++)
```

```
    {
```

```
        for(j=0;j<113;j++);
```

```
    }
```

```
    //1 ms
```

```
}
```