

Introduction to Electric Vehicles

Final project

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KAIST

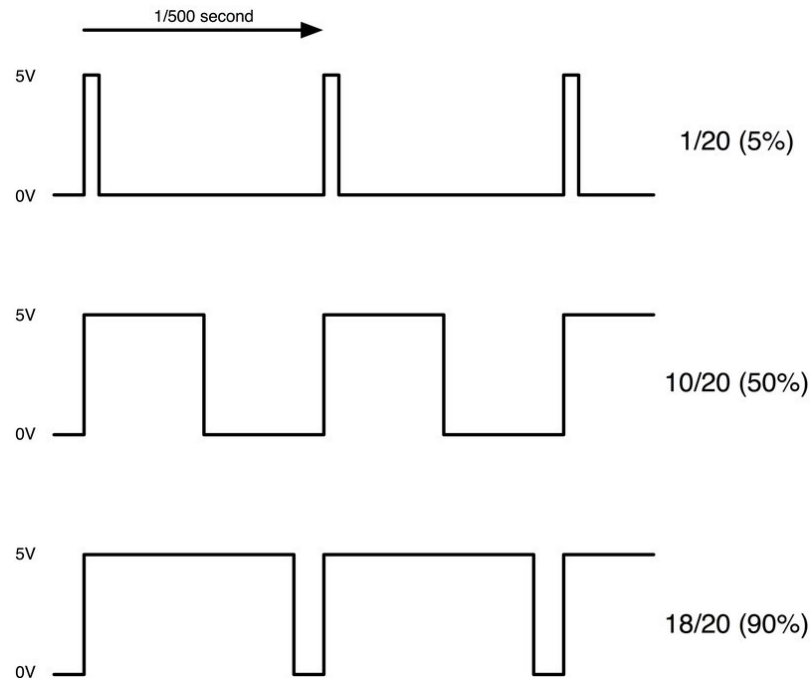
The KAIST logo consists of the word "KAIST" in a bold, blue, sans-serif font. Below the text is a blue horizontal oval shape that tapers at both ends, serving as a base or shadow for the text.

Final project

- Piezo buzzer
- Frequency control by PWM signal
- Implement music which you choose
- Save 5 musics in the memory
 - Apply the homework 3
- Change the music using the button
 - Press 1 time : play next music
 - Press 2 times : play before music
 - Apply the homework 2
- Write the title on the LCD
 - Apply the midterm project

PWM

- Pulse-width modulation (PWM) is a technique used to encode a message into a pulsing signal
- Frequency
 - Number of cycle in one second
- Duty cycle
 - Proportion of 'on' time to the regular interval or 'period' of time



Alternate Port Functions

- AVR microcontroller AT90CAN128 p.71
- Find PWM output port

Port Pin	Alternate Function
PE7	INT7/ICP3 (External Interrupt 7 Input or Timer/Counter3 Input Capture Trigger)
PE6	INT6/ T3 (External Interrupt 6 Input or Timer/Counter3 Clock Input)
PE5	INT5/OC3C (External Interrupt 5 Input or Output Compare and PWM Output C for Timer/Counter3)
PE4	INT4/OC3B (External Interrupt4 Input or Output Compare and PWM Output B for Timer/Counter3)
PE3	AIN1/OC3A (Analog Comparator Negative Input or Output Compare and PWM Output A for Timer/Counter3)
PE2	AIN0/XCK0 (Analog Comparator Positive Input or USART0 external clock input/output)
PE1	PDO/TXD0 (Programming Data Output or UART0 Transmit Pin)
PE0	PDI/RXD0 (Programming Data Input or UART0 Receive Pin)

Piezo buzzer

- Control frequency of the buffer by PWM output

