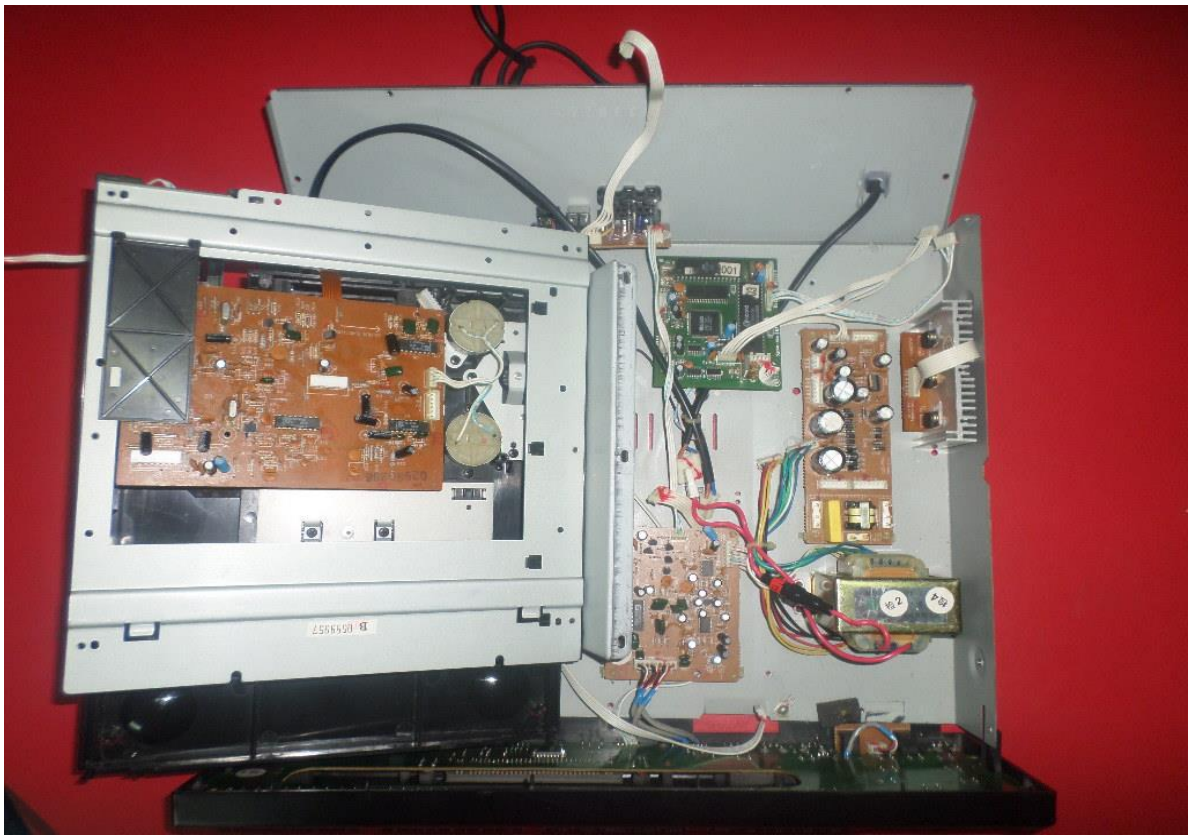
Robonuts
10817C

Video cd player model:VCD-J7003H

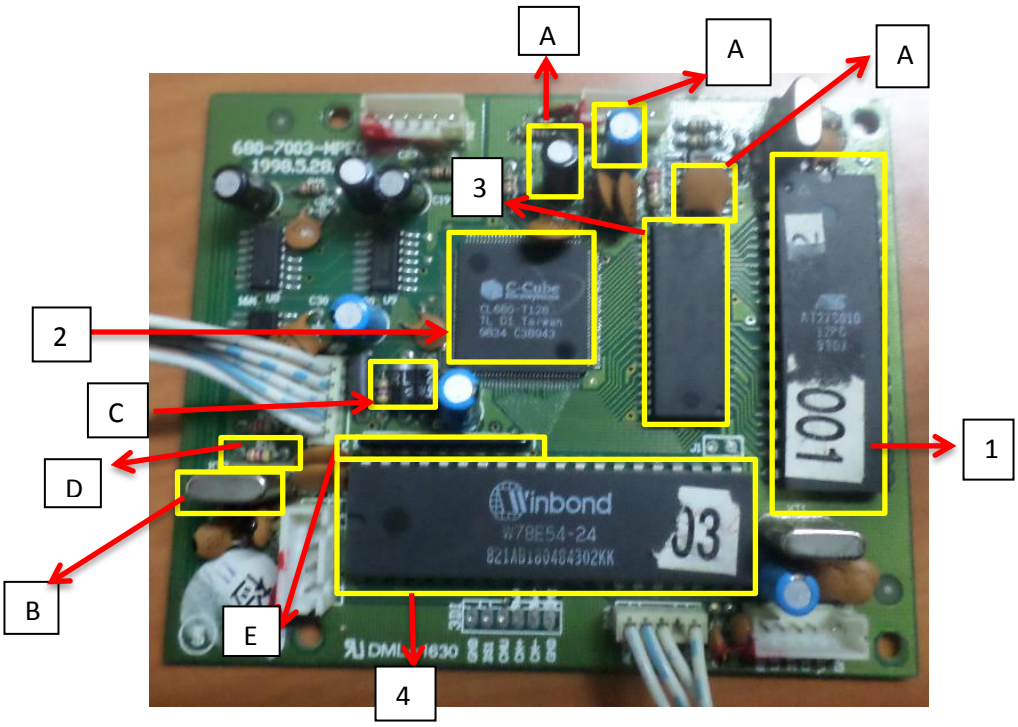
Introduction:

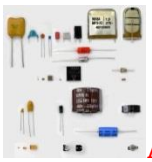
For our Vex Texas Instruments Online Challenge, we chose to deconstruct a Nintaus video CD player vcd-j7003h. Our reason for choosing this specific device over a myriad of other choices stems is that it is giving us more information about electricity



Electronic Components and Their Functions

1. Resistors: Components used to resist current.
2. Capacitors: Components that store electrical charge in an electrical field.
3. Crystal oscillator: Passive components that use piezoelectric effect.
4. Semiconductors: Electronic control components with no moving parts.
5. Diodes: Components that conduct electricity in only one direction.
6. Transistors: A semiconductor device capable of amplification.
7. Integrated Circuits or ICs: A microelectronic computer electronic circuit incorporated into a chip or semiconductor; a whole system rather than a single component





A: Capacitor: A capacitor is a passive two-terminal electrical component that stores electrical energy in an electric field .The effect of a capacitor is known as capacitance. While capacitance exists between any two electrical conductors of a circuit in sufficiently close proximity, a capacitor is specifically designed to provide and enhance this effect for a variety of practical applications by

consideration of size, shape, and positioning of closely spaced conductors, and the intervening dielectric material. A capacitor was there for historically first known as an electric condenser.

B:Crystal oscillator: A crystal oscillator is an electronic oscillator circuit that uses the mechanical resonance of a vibrating crystal of piezoelectric material to create an electrical signal with a precise frequency. This frequency is commonly used to keep track of time, as in quartz wristwatches, to provide a stable clock signal for digital integrated circuits, and to stabilize frequencies for radio transmitters and receivers..

C : Diode: In electronics, a diode is a two-terminal electronic component that conducts primarily in one direction (asymmetric conductance); it has low (ideally zero) resistance to the flow of current in one direction, and high (ideally infinite) resistance in the other.

D: Resistor: A resistor is a passive two-terminal electrical component that implements electrical resistance as a circuit element. In electronic circuits, resistors are used to reduce current flow, adjust signal levels, to divide voltages, bias active elements, and terminate transmission lines, among other uses.

E: Resistor Array: A resistor array is a single package which contains more than one resistor. They are typically used for convenience when several resistors are needed together in the same place in a circuit**.**

1: The AT27C010/L: The AT27C010/L is a low-power, high performance 1,048,576 bit one-time programmable read only memory (OTP EPROM) organized as 128K by 8 bits. They require only one 5V power supply in normal read mode operation. Any byte can be accessed in less than 45 ns, eliminating the need for speed reducing WAIT states on high performance microprocessor systems.

2: C-Cube Microsystems: C-Cube Microsystems was an early company in video compression technology as well as the implementation of that technology into inexpensive semiconductor integrated circuits. C-Cube was the first company to deliver on the market opportunity

presented by the conversion of image and video data from analog to digital formats enabling markets such as Video CD, DVD, DirecTV, digital cable and non-linear editing systems.

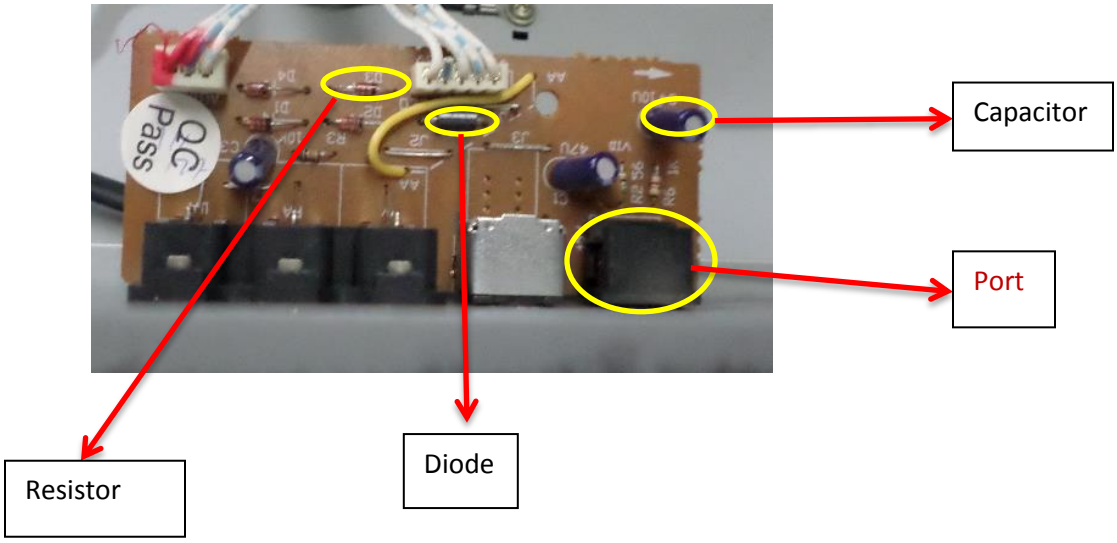
CL680 VIDEO-CD DECODER SINGLE-CHIP AUDIO/VIDEO/CD-ROM DECODER WITH INTEGRATED NTSC/PAL ENCODER

The CL680 VideoCD Decoder is a highly integrated MPEG-1 system decoder for VideoCD players. • **Higher Integration**: The CL680 has an integrated digital NTSC/PAL encoder, eliminating the need for a discrete device and reducing total design footprint. • **Enhanced Quality**: The CL680 incorporates WideSound™, C-Cube's proprietary audio technology that provides a surround sound experience in stereo applications.

3: This family is a 4M bit dynamic RAM organized 262 x 16-bit with CMOS DRAMs. The circuit and process design allow this device to achieve high performance and low power dissipation. Optional features are access time (50, 60 or 70ns), package type (SOJ or TSOP-II) and power consumption (Normal or Low power with self-refresh.

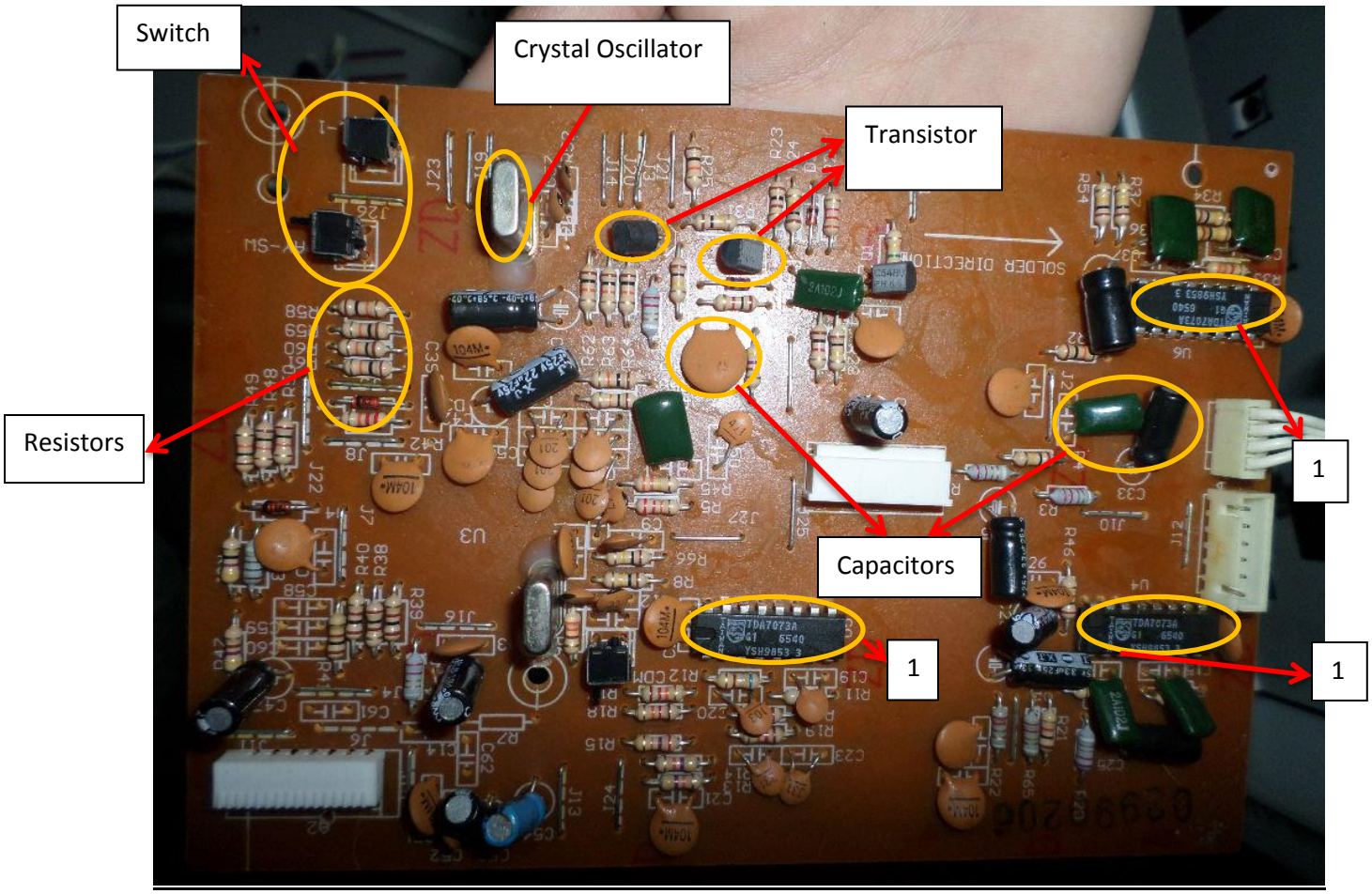
4: The W78E54 is an 8-bit microcontroller that is functionally compatible with the W78C54, except that the mask ROM is replaced by a flash EEPROM with a size of 16 KB. To facilitate programming and verification, the flash EEPROM inside the W78E54 allows the program memory to be programmed and read electronically. Once the code is confirmed, the user can protect the code for security. The W78E54 microcontroller supplies a wider frequency range than most 8-bit microcontrollers on the market

Transformer: A transformer is an electrical device that transfers electrical energy between two or more circuits through electromagnetic induction. Electromagnetic induction produces an electromotive force within a conductor which is exposed to time varying magnetic fields. Transformers are used to increase or decrease the alternating voltages in electric power applications.



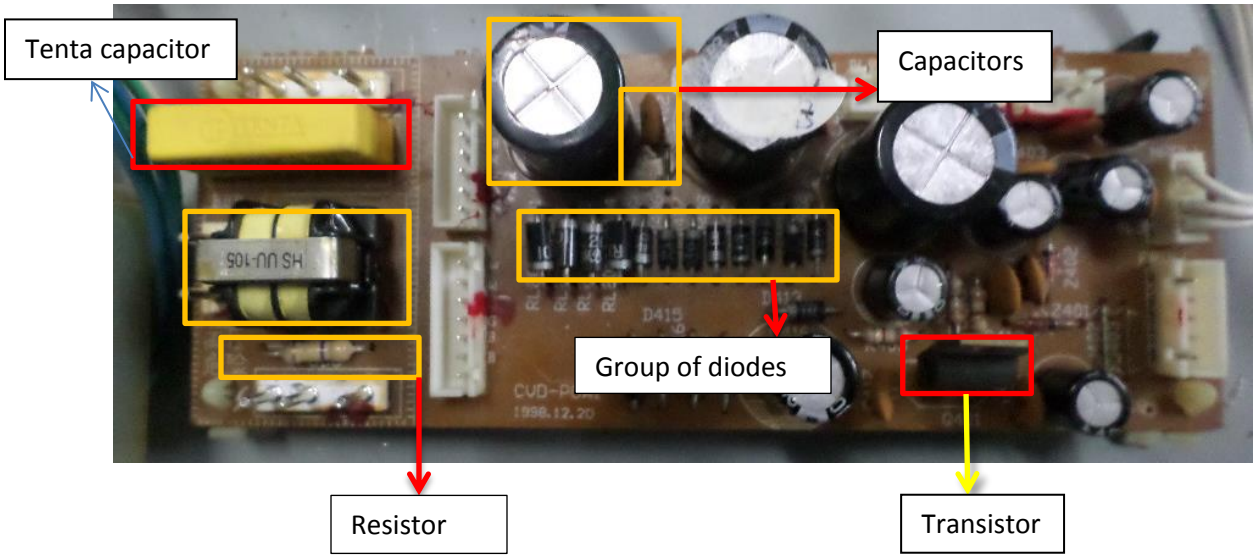
Port: In electrical circuit theory, a port is a pair of terminals connecting an electrical network or circuit to an external circuit, a point of entry or exit for electrical energy. A port consists of two nodes (terminals) connected to an outside circuit, that meets the port condition; the currents flowing into the two nodes must be equal and opposite.

PT6311: is a Vacuum Fluorescent Display (VFD) Controller driven on a 1/8 to 1/16 duty factor. Twelve segment output lines, 8 segment/grid output drive lines, one display memory, control circuit, key scan circuit are all incorporated into a single chip to build a highly reliable peripheral device for a single chip microcomputer.

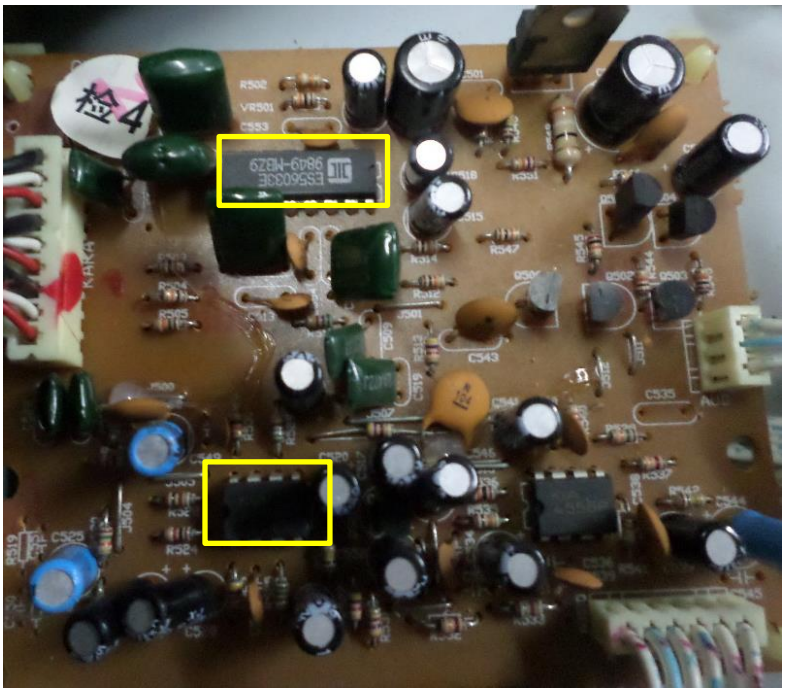


1:The TDA7073A/AT : are dual power driver circuits in a BTL configuration, intended for use as a power driver for servo systems with a single supply. They are specially designed for compact disc players and are capable of driving focus, tracking, sled functions and spindle motors.

Switch: In electrical engineering, a switch is an electrical component that can break an electrical circuit, interrupting the current or diverting it from one conductor to another. The mechanism of a switch may be operated directly by a human operator to control a circuit (for example, a light switch or a keyboard button).



Tenta capacitor: Ideal for using in Line-By-Pass, Antenna Coupling. Across-The-Line and Spark killer circuits and available for EMI filter and switching power supply and radio-and monitor, television application.



1:ES56033: ES56033 is an echo effect generator IC. It has an internal VCO circuit to provide the system clock, and it is easily to adjust the suitable frequency with external variable resistor. It has an ADC, DAC and uses digital processing audio signal for the delay time. ES56033 can be easily used in the karaoke .T.V. and other electronic instruments

2:4558P: DUAL LOW NOISE OPERATIONAL AMPLIFIER

Internal Frequency Compensation Type. Possible to Exchange the Position of Pin 9 for Pin1 Because of Pin Connection Being Symmetric. (KIA4558S Device Only). Pin 1 and Pin 2 of lead frame was each other connected. (KIA4558S Only).

Conclusion:

In conducting this research project
we discovered a lot more about the true electrical function of electrical components we had heard of befor e but had never really looked into. While this device is not associated with Texas Instruments we learned about the very global path that the products we use must travel in order to make it into our possession an d how even the simplest of devices is very complex on the inside.