ROBOTECH

98472A

Texas Instruments Challenge

Introduction:

For the vex Texas instruments online challenge we choose to deconstruct a 52X cd rom.

From the mid-1990s until the mid-2000s, CD-ROMs were popularly used to distribute software for computers and video game consoles. Some CDs, called enhanced CDs, hold both computer data and audio with the latter capable of being played on a CD player, while data (such as software or digital video) is only usable on a computer (such as ISO 9660 format PC CD-ROMs).

An early CD-ROM format was developed by Sony and Denon, introduced at a Japanese computer show in 1984.

It was an extension of Compact Disc Digital Audio, and adapted the format to hold any form of digital data, with a capacity of 540 MB.

The yellow book the technical standard that defines the format of CD-ROMs.

One of a set of color-bound books that contain the technical specifications for all CD formats, the Yellow Book, standardized by Sony and Philips in 1988, has a capacity of 650 MB.

The reason for choosing this specific device :

We always wonder how does the cd rom read the cd's and analyze the data.

List of internal components :

- Processing board
- Chips (ICs)
- Capacitors
- Resistors
- Ports
- Audio port

- 2x DC motors
- Brush DC motor
- Magnet
- The laser circuit
- gears and rack gears
- Buttons

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The cd rom body before deconstructing

Removing the cover

Removing the Processing board

The processing board :

The processing board has 8 ICs:

1- Winbond w8827f

2- Elitmt M10b1164A-35V

3- Toshiba TC94945

4- TA043AA

5- 952EAKHV7

6- BA5937FP

7- Toshiba TA8493AF

8- ABA2308

The processing board is responsible for all the operations in the cd rom like : reading, writing, turning on the motors .....etc.
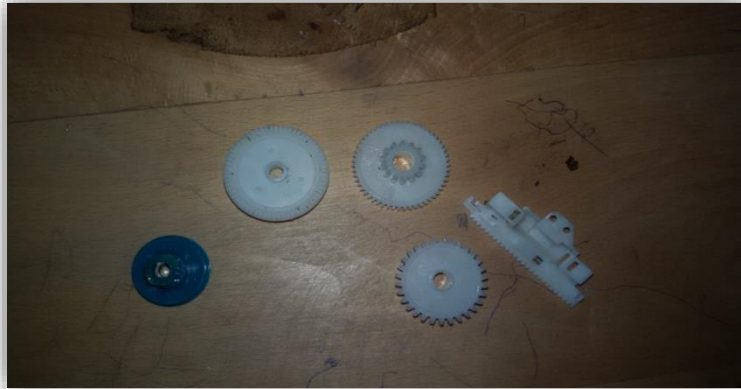
The ports

We connect the CD rom to the motherboard by connecting the wires to the ports.

The DC motors

The DC motors are responsible for any movement inside the CD rom.
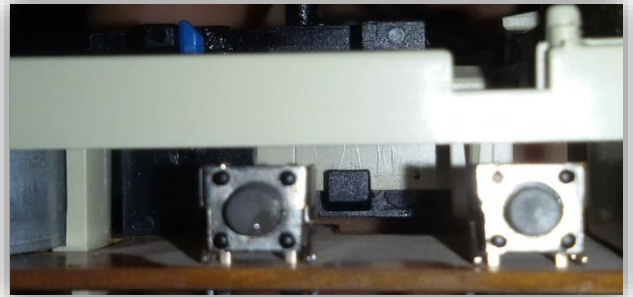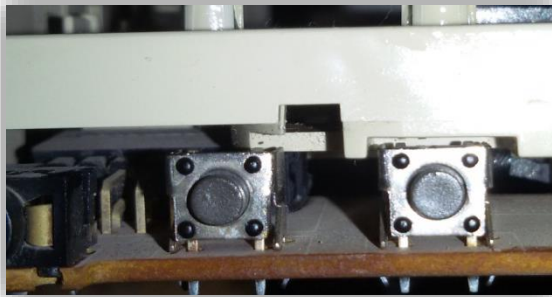
The gears and the rack gears

The gears and the rack gears are responsible for transferring the movement from the motors to move the cd housing inside and outside the CD rom.

The audio port

You can plug your head phone in it and listen to any audio file in the CD.

The buttons

They are used for giving the commands to the motors to make the CD housing move inside and outside the cd rom and they are used to navigate between audio files in the CD.

The laser unit

This unit is responsible for reading the CD and sending the data to the processing board.

The brush DC motor and the magnet
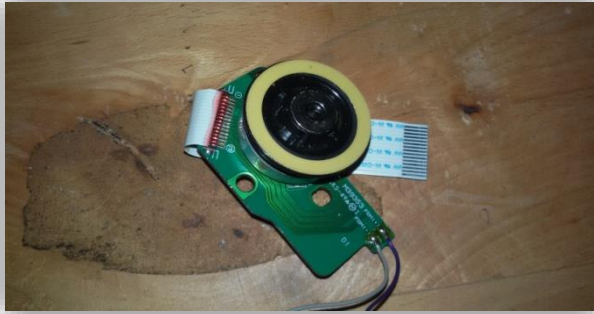
The motor and the magnet are responsible for rotating the CD with a high speed to make the laser circuit read it.

The conclusion:

By deconstructing and researching about the CD-rom we have learned a lot about electronics, electronical components and laser technology .
We have learned a lot of new skills which we have never heard about it so we thank Texas Instruments for making this challenge and making us learn new things.

Team Name:　　　**ROBOTECH Team**
Team Number:　　　**98472A**

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