

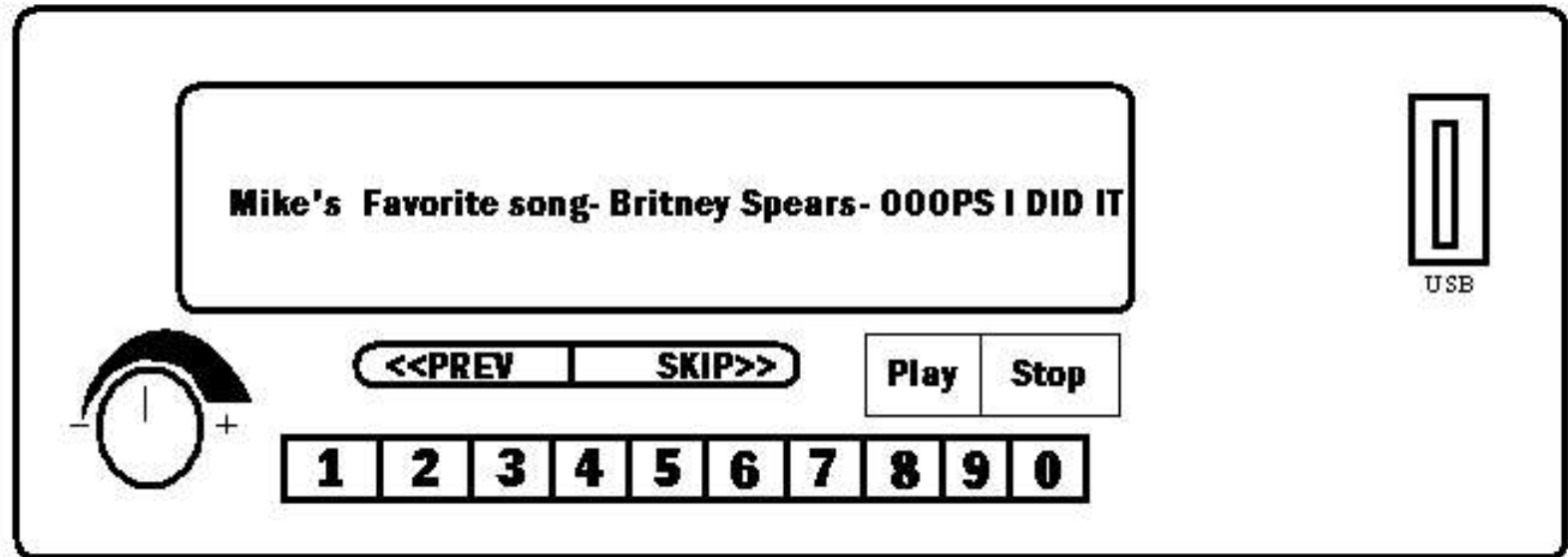
A cluster of glowing blue mushrooms with translucent caps and stems, set against a dark background. The mushrooms are illuminated from within, creating a bright blue glow. The largest mushroom is at the top left, with several smaller ones clustered below and to the right. The stems are thin and vertical, some with small, curved details at the base.

Mega MP3 Player

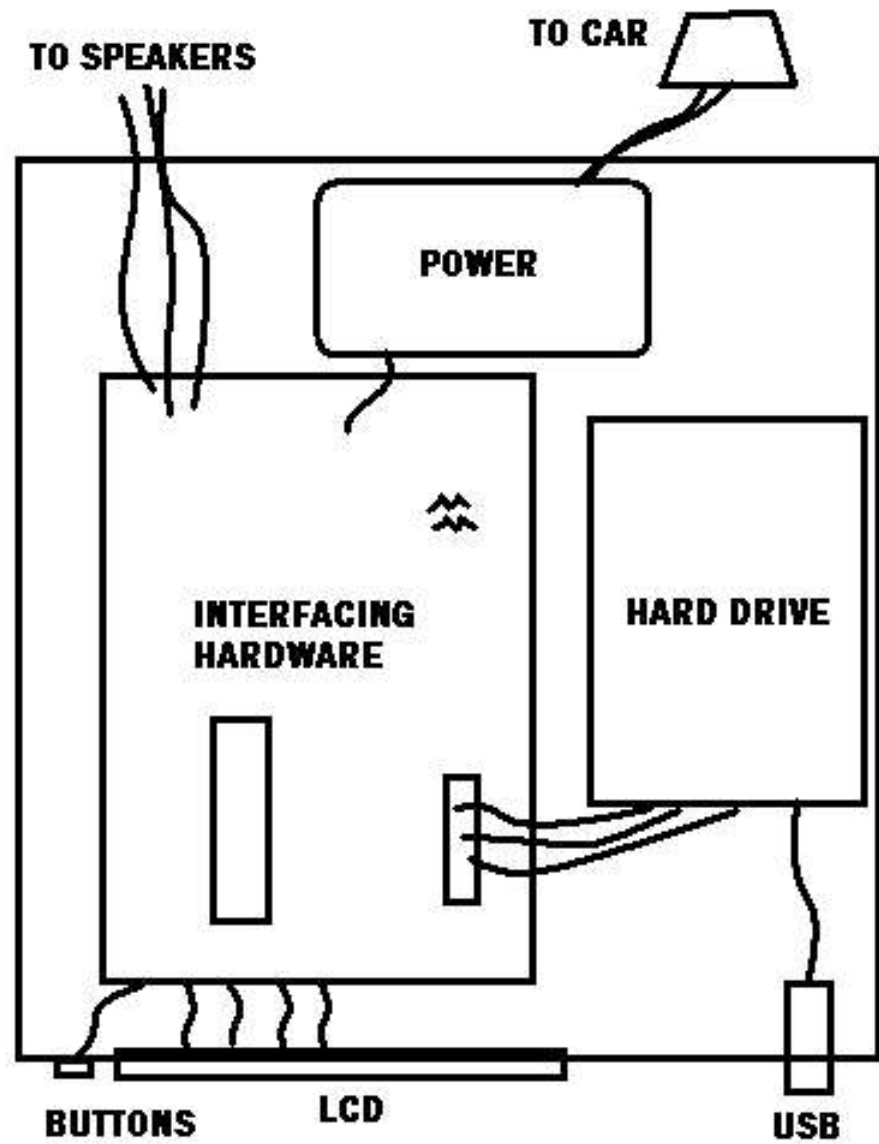
Fetah Basic
Mike Ballard
Sam Roundy

Team
Jiggawax

What the user sees



Hardware



Tentative Tasking

<u>TASK</u>	<u>MIKE</u>	<u>FETAH</u>	<u>SAM</u>
Inputs			
Controller/s			
Hard Drive			
LCD			
USB			
Speaker			
Power			
Report			

Controller

Motorolla 68332 32-bit processor

Controller Features

- Modular Architecture
- Central Processing Unit (CPU32)
- Upward Object Code Compatible
- New Instructions for controller Applications
- 32 Bit Architecture
- Virtual Memory Implementation
- Loop Mode of Instruction Execution

Controller Features

•Table Lookup
and Interpolate Instruction

•Improved
Exception Handling for Controller
Applications

•Trace on
change of flow

•Hardware
breakpoint signal, Background
Debugging Mode (BDM)

Controller System Integration Module

- Dedicated Micro-Engine Operating Independently of CPU32
- 16 Independent Programmable Channels and Pins
- Any Channel can Perform Any Time Function
- Each Channel has Six or Eight 16 Bit Parameter Registers
- Each Timer Function May Be Assigned to More Than One Channel
- Two Timer Counter Registers with Programmable Prescalers

Hard Drive



- **Capacity: 80.0 GB**
- **Interface: ATA/100**
- **RPM: 4200 RPM**
- **Height: 9.5 mm**
- **Screw Hole Pattern: New**
- **Avg Seek Time: 12 MS**
- **Buffer Speed: 8 MB**
- **Warranty: 3 Year Warranty**

Hard Drive

ATA-6 Ultra-ATA/100, 100MBytes/sec, 16 bit data width 40 pin data connector/80 pin cable, with the additional 40 new pins being Ground. Using PIO Modes 0, 1, 2, 3, or 4 and Multiword DMA modes 1 and 2 and Ultra DMA modes 0, 1, 2, 3, 4 and 5.

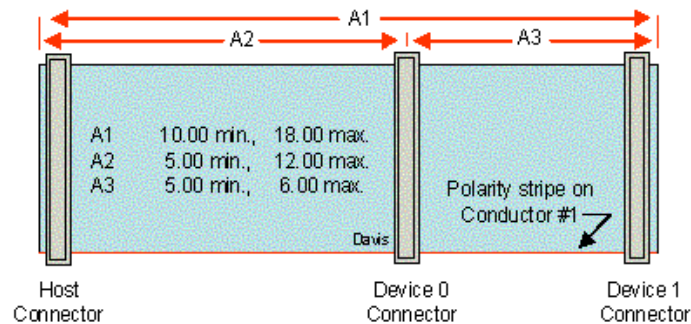
100MBps Transfer speed = $[(1/40\text{nS}) \times 2 \text{ bytes} \times 2]$.

Where 40nS cycle time is 2 clock periods at 20nS each

Hard Drive

- **PIO Modes: 0** [3.3MB/s], **1** [5.2MB/s], **2** [8.3MB/s], **3** [11.1MB/s], **4** [16.7MB/s]
- **Multiword DMA Modes: 0** [4.2MB/s], **1** [13.3MB/s], **2** [16.7MB/s]
- **Ultra DMA Modes: 0** [16.7MB/s], **1** [25.0MB/s], **2** [33.3MB/s], **3** [44.4MB/s], **4** [66.7MB/s], **5** [100.0MB/s]

Hard Drive



IDE Parallel Cable Physical

Pin	Function	Pin	function
1	Reset	2	Ground
3	Data 7	4	Data 8
5	Data 6	6	Data 9
7	Data 5	8	Data 10
9	Data 4	10	Data 11
11	Data 3	12	Data 12
13	Data 2	14	Data 13
15	Data 1	16	Data 14
17	Data 0	18	Data 15
19	Ground	20	Key
21	DMARQ	22	Ground
23	DIOW-	24	Ground
25	DIOR-	26	Ground
27	IORDY	28	CSEL
29	DMARK-	30	Ground
31	INTRQ	32	IOCS16-
33	DA1	34	PDIAG-
35	DA0	36	DA2
37	CS1FX-	38	CS3FX-
39	DASP-	40	Ground

40 Pin IDE Connector Pin-Out

LCD



LCD

- 16 character x 2 lines LCD module, 1/16 duty, 1/5 bias, 5V operation
 - Overall dimensions: a) 85 x 32.6 x 9.5 (max); EL backlight/no backlight
 - b) 85 x 32.6 x 13.5 (max); LED backlight
- Viewing area: 64.5 x 16.4mm
- Character size: 3.0 x 5.23mm
- Dot size: 0.56 x 0.61mm

Speaker

- Analog to Digital and Digital to Analog Converting
- Amplification
- Volume control

Power

- Nothing requires more than 5V
- There are no Voltages less than 3.3V

USB



USB

- Cypress EZ-USB FX2 2.0 Full Speed USB Controller.
- 11 Pin Data Connector (8 Data Bits, R/W, Clk and GND).
- 3 Pin Power Connector (+5V, +3.3V and GND).
- 1.25" x 2.0" Size with Mini USB Connector.

User Inputs

- 1 Volume button
- 14 push buttons
 - 0-9 digits
 - Play/Select
 - Skip/Next
 - Previous
 - Power







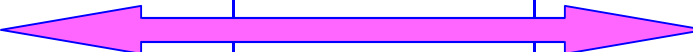

User Inputs

- Menu/Main Page
 - Navigate hard drive
 - Navigate USB input device
 - Song Select
 - Equalizer?
 - Etc.

BOM (Bill of Materials)

<u>Component</u>	<u>Make</u>	<u>1st Place of Purchase</u>	<u>2nd Place of Purchase</u>	<u>Cost</u>
Hard Drive	Toshiba HDD2188 MK-8025GAS	Drive solutions, Inc.	Bason Computer Inc.	\$189.00-\$210.00
Controller/s	32-bit Microcontroller Motorola 68332	Motorola.com Europractice		~\$100.00
LCD	LCD FM162B	Global Sources		<\$100.00
USB	USBee EX 2.0 Experimenters Board	USBee.com		\$199.00

Initial Schedule Flow

<u>TASK</u>	<u>AUGUST</u>	<u>SEPTEMBER</u>	<u>OCTOBER</u>	<u>NOVEMBER</u>	<u>DECEMBER</u>
Inputs					
Controller/s					
Hard Drive					
LCD					
USB					
Speaker					
Power					
Report					

Successful

- Plays decent music
- Stores music
- Interacts with user
- Displays information to LCD (hopefully the right information)

QUESTIONS?

