Toy Car Control

Record Drive and Play...

Padminja, Anuradha & Haneen
**Absolute Maximum Ratings**

- DC Supply Voltage: 0.3V to 5.0V
- Input/Output Voltage: GND -0.2V to VDD + 0.2V
- Operating temperature: -10°C to 60°C
- Storage Temperature: -25°C to 125°C

**Electrical Characteristics**

**TX2**

(VDD=4.5V, Fosc = 128KHz, TA=25°C, unless otherwise specified.)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Voltage</td>
<td>VDD</td>
<td>2.4V</td>
<td>4.0V</td>
<td>5.0V</td>
</tr>
<tr>
<td>Operating Current</td>
<td>I_{dd}</td>
<td>-</td>
<td>-</td>
<td>1mA</td>
</tr>
<tr>
<td>Stand-by Current</td>
<td>I_{stb}</td>
<td>-</td>
<td>-</td>
<td>1μA</td>
</tr>
<tr>
<td>DC O/P Driving Current</td>
<td>I_{drive}</td>
<td>5mA</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>AC O/P Driving Current</td>
<td>I_{drive}</td>
<td>5mA</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>AC O/P Frequency</td>
<td>F_{audio}</td>
<td>500Hz</td>
<td>-</td>
<td>1KHz</td>
</tr>
</tbody>
</table>
Electrical Interfaces and Wiring

- LCD Monitor for Status
- Common GND between Remote and HCS12
- Wires soldered to Left, Right, Forward, Backward pins of remote
- PORT E 7-E4 are used as Outputs
- PORT H0-H3 are used as inputs
- HCS12 powered up through USB
- 100K Pull Up resistors connected to 5V supply and Forward, backward pin outs
- Tx2 Chip for Remote
Software Architecture

Remote Buttons Pressed for one path

PORTH Reads i/p

ISR – Store button press data into buffer

Clear Interrupt flags, go to main function

Car Moves in reverse path

PORT E then drives the REMOTE buttons

Car Moves in reverse path

PORT E then drives the REMOTE buttons

If user unselects the option, stop and go to Main else continue

Controller in Infinite Loop

Read from Buffer array and send to PORT E

Send pre determined values to PORT E

Display status on LCD Monitor

User Option selection

Rewind selected

Rewind

READ

Patterns selected

Patterns

Repeat selected

Repeat

If user unselects the option, stop and go to Main else continue

Car moves in Circular path for 15 sec

Car moves in Zig Zag path

Go to Main function

Main Function...

PORT Configuration

PORT Configuration

If user unselects the option, stop and go to Main else continue
Thank You