

Contents

Acknowledgments	ix
Introduction	xxi

Part I: Playing Your Games the Way They Are Meant to Be Played — with Arcade Controls 1

Chapter 1: Picking Your Path to Game-Playing Nirvana	3
Where to Start? Finding Your Muse	3
Choosing Your Goal	4
Building a desktop arcade controller	5
Building an arcade cabinet	6
Buying your way to gaming Nirvana	9
Thinking point	10
Plan, Plan, and Then Plan Some More	10
Deciding to build or buy	10
Planning for controls and interfaces	11
Picking software	11
Figuring your budget	11
Putting it on paper	12
Summary	12
Chapter 2: Building Your Arcade Cabinet	13
Anatomy of a Cabinet	14
Determining the Things You Need	16
Assessing your woodworking skills	16
Choosing the wood	16
Choosing a cabinet plan	18
Getting Ready to Build Project Arcade	21
Setting up shop	21
Going over the plans	22
Obtaining tools and supplies	22
Beginning Construction	26
Drawing and cutting out the plans	26
Assembling the Project Arcade cabinet	34
Painting the Project Arcade cabinet	56
Summary	59

Part II: Designing and Building Your Dream Arcade Control Panel

61

Chapter 3: Pushing Your Buttons and the Joy of Joysticks 63

Buttons, Buttons, Everywhere!	63
Different types of pushbuttons	64
Joysticks	72
Types of joysticks	72
A look at several different joysticks	80
Summary	89

Chapter 4: Taking Your Game Out for a Spin—

Spinners and Trackballs 91

What Do Spinners and Trackballs Do?	91
Spinner Choices	92
Building your own spinner from scratch	93
Purchasing an arcade spinner	95
Trackball Choices	102
Computer trackballs	104
Arcade trackballs	106
Summary	108

Chapter 5: Arcade Controls for Power Gamers 109

Steering Wheels and Pedals	109
How steering wheels work	110
Buying a wheel	112
Building a wheel	114
Converting an arcade wheel	115
Shifting gears	116
Final word about steering wheels	120
Flight Yokes	121
Buying a flight yoke	122
Building a flight yoke	122
The <i>Star Wars</i> yoke	122
Arcade Guns	125
Light guns	126
Positional guns	128
Dance Pads	129
Buying a dance pad	129
Building a dance pad	130
Summary	131

Chapter 6: Building the Control Panel 133

Laying Out Your Design	133
Choosing your controls	133
Designing a template	135
Design philosophy	141
Putting what you've learned into practice	143
Installing the Controls	144
Metal versus wooden control panels	144
Buttons	145
Joysticks	146
Spinners	148
Trackballs	148
Guns	149
Steering wheels and yokes	150
Dance pads	151
Mounting the Control Panel	151
Multiple control panels	151
Attaching the control panel box	152
Standalone Control Panels	153
Project Arcade Control Panel Design	154
Summary	155

Part III: Hooking Things Up Under the Hood — Time to Trick the Computer

157

Chapter 7: How It Works—Turning a Computer into the Brains of an Arcade Machine 159

Digital and Analog	159
Digital data	160
Analog data	160
Mixing them together	160
Arcade Cabinet Wiring 101	164
Traveling the arcade circuit	164
Shopping list	165
Wiring techniques	169
Grounding	174
Sharing controls	174
Tapping into power	175
How It All Works	178
Summary	178

Chapter 8: Using the Keyboard Connector for Arcade Controls 179

Hacking a Real Keyboard	179
How keyboards work	180
How to hack a keyboard	183
Multiple Keyboard Connections	189
Keyboard splitters	189
USB keyboards	189
Keyboard pass-thru	190
Customized Keyboard Encoders	190
The ButtonBox	192
Hagstrom Electronics	192
KeyWiz Eco/Max	199
MAMI 24/48	201
MK64	201
Ultimate Arcade Controls	202
Encoder wrap-up	207
Summary	207

Chapter 9: Arcade Controls Using the Mouse Connector 209

How Mice Work	209
Mechanical versus optical	210
Optical encoders	210
Mouse buttons	212
Hacking a Mouse	213
Physical hacks	214
Electrical hacks	216
Hacking buttons	223
Purchasing Optical Encoders	223
Happ Controls USB trackball interface kit	224
Hagstrom Electronics	225
Oscar Controls USB mouse interface	229
Ultimarc Opti-Pac	230
Optical encoder wrap-up	231
Multiple Mice	231
Multiple ports	232
Mice splitters	232
Switchable mice	233
Recommendation	234
Summary	234

Chapter 10: Miscellaneous Bits of Arcade Trickery 235

Gaming with the Gameport	235
How the gameport works	236
Game pad hacks	241
Wrapping up the gameport	245

Using the USB Port	246
USB Features	246
Connecting to the USB port	247
Other Miscellaneous Tricks	248
Summary	249

Part IV: Putting Together the Final Pieces 251

Chapter 11: Audio — Silence Isn't Golden 253

Speaking of Speakers	254
Choosing PC speakers	254
Other speaker choices	254
Speaker recommendations	258
Mounting speakers	258
Volume control	265
Arcade Jukeboxes	266
Building an arcade jukebox	267
Jukebox software	267
Summary	269

Chapter 12: A Picture Is Worth a Thousand . . . Tokens? 271

Electrical Warning	271
A Basic Understanding of Monitors	273
Anatomy of a monitor	276
How to safely handle a monitor	282
Proper care and feeding of a monitor	283
Monitor Types	284
Monitor resolution and refresh rates	284
Arcade monitors	287
Televisions	293
Computer monitors	295
Choosing a monitor	297
Monitor Mounting	298
Bezels	298
Monitor orientation	298
The Project Arcade monitor	302
Summary	303

Chapter 13: Installing the Computer 305

Configuring Your Computer for Total Arcade Immersion	306
Picking a computer	306
Setting up your computer	307
Sights, sounds, and themes	314
Launching your games	318

Installing the Computer into the Cabinet	325
Reasons to take your PC apart	325
How to mount a disassembled PC	326
How to mount a complete PC	328
Special consideration — mounting USB ports	328
Summary	330
Chapter 14: Choosing and Loading Software	331
All About Emulators	331
How does an emulator work?	332
Emulators you should try	334
Are emulators legal? The ethics and laws behind obtaining ROMs	342
Commercial Arcade Software	346
Microsoft's arcade series	347
Atari's arcade titles	347
Digital Leisure's laser disc arcade games	351
Shareware and Other Great Games	353
Summary	354
Chapter 15: Buttoning Up the Odds and Ends	355
Decorating the Cabinet	355
Artwork philosophies	355
Finding artwork	356
The marquee	363
Side art	367
Control panel artwork	370
Bezels	380
Instruction cards	382
Lighting Effects	382
Protecting the Cabinet	384
Other Odds 'n' Ends	386
The coin door	386
Powering the cabinet	389
Summary	391

Part V: Like the Concept but Not Sure You Have It in You?

393

Chapter 16: Stuck? Frustrated? Out of Quarters?	395
Troubleshooting Tips	395
Cabinet-building conundrums	395
Software snafus	398

Getting Help	400
How to get help, and how not to	400
Helpful Web sites	401
Newsgroups	403
Giving Back	403
Build a Web site	404
Join the BYOAC community	404
Summary	404
Chapter 17: Buying Your Way to Gaming Nirvana	405
Kits	405
Arcade Depot cocktail kit	406
HanaHo ArcadeWerX	407
SlikStik arcade cabinet	409
X-Arcade Machine cabinet by Quasimoto	411
Arcade Controllers and Cabinets	411
Desktop arcade controllers	412
Full arcade cabinets	413
Using an arcade machine	414
Game Console Controller Adapters	416
Summary	416
Chapter 18: Online Places to Go	417
Inspirational Projects to See	417
Upright arcade cabinets	417
Cocktail arcade cabinets	427
Desktop arcade controls	431
Other arcade projects	433
Great Places to Get More Information	440
The Project Arcade Finale	443
Summary	444
Appendix A: Where to Find Arcade Parts for Your Project	447
Appendix B: The Great Debate — Preserving Versus MAMEing the Past	451
Appendix C: What's on the CD-ROM	453
Index	461
End-User License Agreement	477