Project Suggestions

In past years, a great variety of projects have been successfully completed. The following is a list of some of these completed final project reports.

The project reports for the years 2003 and earlier are on file in 38-684. Some may be missing, likely they were not returned by a former student. We have no other stash of old project reports. You may sign out any one for an overnight loan or for reading in the lab. You are free to make a copy of part or all of a report if you want to keep it for a longer time. From 2004 on, all reports are on the respective web pages. The best and most interesting of your project reports will be used to augment this list for future terms.

It is often more satisfying to have projects which do something in addition to blinking LEDs. Examples are audio output, TV monitors, or VDT terminal displays.

Be careful – most unsuccessful projects were too complex. We will help you to size your project appropriately.

- Computer/Editor/Graphics
  94-8 Video Editing in Real Time
  94-11 OSCAR, Optical Character Recognition Machine
  94-16 Digital Oscilloscope
  96-3 Visually Controlled Pointer Device
  96-7 An Object Tracker
  96-15 A Personal Location and Navigation System at MIT
  97-4 Stretch
  97-9 Digital Postscript Imager
  2000-2 The Design and Implementation of a Digital Oscilloscope
  2000-4 Brushfire: A Hardware Platform for Running a Modern Operating System
  2000-8 Design and Implementation of a General Purpose Computer based on the 6.004 Beta Architecture
  2001-15 JPEG Decompression
  2002-6 Design and Implementation of a Mandelbrot Set Generator
  2003-3 Hardware RSA Encryption
  2003-7 Infared Instant Messenger
  2003-10 360 Degree LED Display

- Games
  90-1 Video Jigsaw
  90-5 MEMRUC – The Game
90-7 Digital Othello
90-8 Connect Four Machine
90-10 Master Mind – A Video Game
92-9 Nerd Kit Asteroids
93-16 Tetris
94-18 The 6.111 Pinball Machine
95-1 Virtual Kaboom
95-6 B-n-B Space Invaders
96-4 Battleship
96-6 The Pinball Project
97-1 The Amazing Maze
97-7 Ninja Master Fighting Game
98-1 Core Wars
98-9 Main Battle Tank
98-12 Sign Language Hangman
98-16 Automated Foosball
99-9 Electronic Talking Battleship
99-11 Pac-Man
99-14 Wireless Marksmanship Trainer
99-17 Air Connect Four
99-21 3-D Maze Navigation
2000-5 Spotlight Pitch Nintendo Shifting Controller Entertainment System
2001-3 CTF.111 (Capture the Flag)
2001-5 Super Mario Brothers
2001-8 Monkey Box: an 8-bit Video Game platform
2002-5 Nibbles
2002-9 Mastermind against the Machine
2002-11 Pokemon Punchout
2003-8 Virtual Dodgeball
2003-9 Duck Hunt
2003-12 Alleyway
2004-2 iGameplay
2004-9 Nintendo

- Music/Audio

90-3 A Digital Music Synthesize
90-4 A MIDI Controlled Digital Music Synthesizer [MIDI]
90-12 The Magic Music Machine
90-14 Γ: The Musical Project
91-1 Air Piano
91-7 Optical Music Recognition
93-4 Programmable Multi-Channel Sound Synthesizer
94-5 The Digital DJ
94-9 The Multi-Mode Windowing Subtitling Machine
94-10 Super Sampling Sound Sequencer
94-13 The Digital Graphic Equalizer
95-4 Self-calibrating Audio Equalizer
95-14 Bach’s Napkin
96-11 BPM 2001: A Digital Odyssey
   97-2 The Virtual Conductor
98-17 Humanoid Robot Ear Sound Localization
99-22 Digital Air Band
2001-7 Programmable Symphony
2001-9 The Digital DJ
2001-14 Rhythm Master
   2002-1 Music Capturing, Editing, and Playback Unit
2002-10 A Digital Turntable and Effects Processor
   2003-6 Wireless MP3 Jukebox Computer
2003-11 RIVO - Live Radio Recorder
2003-14 Funky Drum Machine
2003-15 Bassbuddy
   2004-1 Midi-Controlled Sample Based Synthesizer
2004-8 Voice Verification

- Video
   90-9 Video House of Mirrors
90-16 Video Jigsaw
   91-5 The MCG-30 Raster Image Processor
91-6 Smart Vision
   92-1 The $6000 Answer to AT&T’s $1500 Videophone
92-5 Video Tracker
   92-8 Digital Darkroom
   93-9 Digital Video Mixing Board
93-10 Air Sketcher
93-11 Killer Crayons!
93-15 Recursive Picture Manipulation
   94-2 Digital Poisson Engine
94-12 Video Chromakeying
95-11 Picture in Picture
95-12 Intelligent Picture-in-Picture Video
   96-1 Design and Implementation of a PONG Game
96-5 The Digital Conductor
   98-3 Downtown Traffic Control Simulator
98-4 3-D Vector Graphics Engine
98-5 The Speed Detector
   98-10 Design and Implementation of a Target Finding and Termination system
98-14 GEORDI: Generalized Enhancement of Real-time Digital Imagery
98-18 S.I.M.A.E.D. Still Image Magnification and Enhancement Device
99-10 RC4 Video Encryption
99-13 Touchscreen Phone
99-20 A Closed-Caption Decoder
2001-6 Mr. Etch-a-Sketch
2001-2 A Digital Video Security System
2001-10 Visual Target Tracking System
2002-7 Magnetic GamePen
2004-6 3D Real Time Renderer
2004-7 WackaTim

• Speech and Communications

  93-3 Telephone Switching System with Voicemail
  93-17 Speech Synthesis Using Linear Predictive Coding
  93-18 A Single Phone Line Demultiplexor
  95-2 Time Multiplexed Single Line Communication System
  98-2 A Flexible Dual Tone Multi Frequency Filter
  98-11 A Voice Based Data Acquisition System
  98-21 Home Security System with Telephone Interface

2001-4 Magnetic Card Reader
2002-8 Text Translator

• Robotics

  90-2 2-D Robot Arm Solving the Shuttle Puzzle Mechanically
  92-6 Robothello
  94-6 Seeing, Object-collecting Robot
  96-13 The Digital Duck Terminator
  98-20 To Mars and Beyond

2000-1 Theseus
2000-6 Writing Robot
2000-7 OJ Rover
2001-11 Writing Robot
2002-2 The “A-Mazing” Robot *Starring Hank the Tank

• Miscellaneous

  87-12 The Life Machine
  90-13 Super Paint
  92-2 ASPIRE Audio Signal Processor Ideally Realm Exclusive
  92-3 Digital Patchbay
  93-2 MAP (Map Algorithm Processing)
  93-6 6.111 Lab 3 Sights and Sounds Unlimited: A Laser Light Show
  94-4 The Conniption Machine
  94-15 Dream Machine
  94-17 Elevator Control System
  93-7 Laser Diagnosis System
  95-3 Attitude Control System for a Small Satellite
  95-5 Infrared Security System
  95-8 Chaotic Scrambler/Descrambler
  96-9 Internet Message Board
  98-13 Sonar with Pulse Compression
  99-15 Digital Pet Parrot
  99-16 Digital Billboard

2001-12 Power Wheels: An Autonomous Driving Machine
2002-3 Automatic Autobahn
2002-4 Digital Bookmark
2003-1 Digital Fan Control System
2003-2 Dialup Remote Weather System
2003-4 Affordable Eyecare: A Low Cost Autorefractor
2003-5 Wireless Electrocardiogram
2003-13 Electronic Target Shooting
2003-17 Crashpad
2003-16 Sound Source Tracking
2004-3 Dance Dance Revolution
2004-4 FROGGER
2004-5 A Wireless Rover with External Video Feedback