

## 300-IN-ONE Electronic Projects Lab – Experiments List

### Surprise and Fun

Light-Controlled Bird  
A Transistor Radio  
Sound Scooper  
American Patrol Car Siren  
Digital Roulette  
IC Organ

### Back to the Basics

Light Telegraph  
Introducing the Resistor  
Parallel Resistor  
Meet the Diode  
The LED-a Special Diode  
The Electronic Gas Tank  
Meet the Transistor  
Transistor as switches  
PNP Transistor Switch  
NPN Transistor Switch  
Delay Light  
Night Light  
Electronic Timer  
Capital Letter Display  
Small Letter Display  
Number Display

### Electronic "Building Blocks"

An Inverter Circuit  
Meet the OR Gate  
Introducing the AND Gate  
Using the NOR Gate  
Meet the NAND Gate  
How a Multivibrator Works  
A "One-Shot" Multivibrator  
An R-S Flip Flop  
Meet the Oscillator  
Changing Oscillation with Capacitor  
Changing Oscillation with Foreign Substance  
More about Oscillator  
A Push-Pull Oscillator

### Putting

#### Electronics to Work

CdS Controlled Oscillator  
Frequency Shift Oscillator  
Motion Detector  
Door Alarm  
Rapid LED Display Switching  
Code Practice Unit  
Current Switch  
Two-Tone Buzzer  
Astable Multivibrator  
Monostable Multivibrator  
Code Practice Unit  
The Noisy Light  
Hearing Aid Amplifier  
Light/Sound Code Practice Unit  
Light Controlled Burglar Alarm  
DC-DC Converter  
Count Down Timer  
Transistor Frequency Doubler  
One Transistor Full-Wave Rectifier

### Radio Circuits

"Crystal Set" Radio  
"Funny Transistor" Radio  
Remote Water Level  
Detector  
IC Radio  
Morse Code Transmitter  
AM Transmitter  
Broadcasting Organ

### Sonic Zoo and Sound Factory

Plant Growth Stimulator  
Electronic Woodpecker  
Fish Caller  
Electronic Raindrops  
Machine Gun Pulse Detector  
Chirping Bird  
Electronic Bird  
"Horror Movie" Sound Effect  
Sound Machine I  
Sound Machine II  
Multi-Tone Siren  
Digital Rhythm  
Two-IC Electronic Organ

### Electronic Decision-Makers

Majority Logic Gate  
Electronic Coin Toss  
Electronic Coin Toss II  
Electronic Coin Toss III  
Even or Odd  
Quick Draw Game  
Close-In  
ESP Tester  
The Light Fantastic  
Shooting Game  
Marching LEDs  
Electronic Dice  
Electronic Roulette

### Operational Amplifier IC Can Do Many Things

Meet the VCO  
Silicon Diode Solar Cell  
Astable Multivibrator Using OP Amplifier  
Pulse Generator  
Experiment of Comparator  
Comparator with Hysteresis  
Constant Current Sources by OP Amplifier  
Non-Inverting Adder  
Touch Switch Using OP Amplifier  
Early Bird  
DC-DC Converter by OP Amplifier  
Inverting Amplifier  
Non-Inverting Amplifier  
Differential Amplifier  
Differential Output Amplifier  
Power Amplifier Using OP Amplifier  
Balanced Transformerless Amplifier  
Three-Stage Differential Amplifier  
VCO Using OP Amplifier

Voltage Controlled Amplifier  
V-F Converter  
F-V Converter  
Sweep Generator  
Multiple-Function IC Project  
Sound Alarm  
Photo Organ  
Vibrato Organ

### Introducing the Power Amplifier IC

IC Power Amplifier  
IC Power Amplifier II  
Oscillator Using Power Amplifier IC  
CdS Controlled IC Oscillator  
Phase Shift Oscillator  
Intercom  
A Water Service Pipe Sound  
Electronic Klaxon  
Wide Range Audio  
Frequency Oscillator

### A Trip to Digital Land

Switching Circuit  
RTL Inverter  
RTL Buffer  
RTL OR Gate  
RTL AND Gate  
Transistor OR Gate  
Transistor AND Gate  
Transistor XOR Gate  
Special NAND Gate  
DTL OR Gate  
DTL AND Gate  
DTL NOR Gate  
DTL NAND Gate  
DTL Exclusive OR Gate  
C-MOS Inverter  
C-MOS Buffer  
C-MOS OR Gate  
C-MOS AND Gate  
C-MOS 3-Input And Gate  
C-MOS NOR Gate  
C-MOS 4-Input NOR Gate  
C-MOS 4-Input NOR Gate II  
DeMorgan's Theorem  
Experiment of Threshold Voltage  
NAND/NOR and Transistor Switch

### More Adventures in Digital Land

C-MOS XOR Gate  
C-MOS NAND Enable Circuit  
C-MOS AND Enable Circuit  
C-MOS OR Enable Circuit  
A One-Shot NAND Gate  
C-MOS Line Selector  
C-MOS Data Selector  
C-MOS R-S Flip Flop  
C-MOS Flip Flop II  
Set/Reset Buzzer  
Set/Reset Buzzer II

Set/Reset Buzzer III  
Transistorized Toggle Flip Flop  
NAND Toggle Flip Flop  
J-K Toggle Flip Flop  
C-MOS Astable Multivibrator  
C-MOS J-K Flip Flop  
C-MOS D Flip Flop  
C-MOS D Flip Flop II  
R-S-T Flip Flop  
T Type Flip Flop  
C-MOS Latch  
Shift Register  
Touch Switch Using NAND Gate  
Half Adder  
D-Latch  
2-Line to 4-Line Decoder  
Multiplier  
Dual 2-Input Multiplexer  
Two-Stage Frequency Divider

### Circuits That Counts

Basic Counter  
Synchronous Counter  
Asynchronous Counter  
Counter with Line Decoder  
Divide by 4 Counter  
Divide by 4 Counter with Line Decoder  
How a Line Decoder Works  
Multiple Counter  
Binary Counter with Display  
Divide by 3 Counter Display  
Divide by 4 Counter Display  
Up/Down Counter  
Down Counter  
Decade Down Counter  
Decade Down Counter with Display  
Presetable Counter  
Hexadecimal Counter  
Octal Counter  
Random Access Display  
Decade Counter  
BCD Counter with Display  
Octal Counter with Line Decoder  
Octal Counter with Display  
Decade Counter with Display  
Decade Counter with Display II

### Getting Closer to Computers

BCD to 7-Segment Decoder  
Full Adder  
Decimal to Binary Encoder  
Binary to BCD  
Octal to BCD  
Hexadecimal to BCD  
3-Bit Shift Register

### Amusement in Digital Land

VCO by NOR Gate  
Pulse-Delayed Circuit

NAND Gate Tone Generator  
Transistor Timer  
Noise-Signal Discriminator  
Pulse Stretcher  
Bidirectional Buffer  
Various Inverters  
Electronic Switch  
Tone Burst Generator  
Digital Timer  
Digital Timer II  
Ten Count Buzzer  
Press First  
Target Range  
Catch the Eight  
SOS Alert  
Wheel of Fortune  
Leapin' LEDs

### Hand Shake of Analogue and Digital

Pulse Number Modulation  
Light Dimmer  
Pulse Width Modulation Light Dimmer  
DC-DC Converter Using the C-MOS Oscillator  
Absolute Value Amplifier  
Window Comparator  
Digital Light Dimmer  
A-D Converter  
D-A Converter  
Photometer with Digital Display  
Surprise and Fun Revisited  
Experiment of Electromagnetic Induction  
Electronic Candle  
Constant Current Circuit  
A Phony Counter  
Alphabet Flasher  
Winking LEDs II  
Delayed Timer II  
Crossing Signal  
Octave Generator  
Sound Out Timer  
Sound Stop  
Big Mouth!  
Light or Sound  
Be Your Own Multivibrator  
Anticipation  
Set/Reset Match

### Testing and Measuring Circuits

Circuit Continuity Checker  
Acoustic Ohmmeter  
Audio Signal Generator  
Temperature-Sensitive Audio Amplifier  
Water Level Detector  
Battery Checker  
IC Oscillator/Component Tester  
Voltage Drop Alarm  
Current Shut-Down Circuit  
Logic Checker  
Logic Checker II  
Temperature Alarm  
Function Generator



## Quasar Electronics Limited

PO Box 6935, Bishops Stortford, CM23 4WP, United Kingdom

Tel: +44 (08717) 177 168 Fax: +44 (07092) 203 496

URL: <http://www.quasarelectronics.com>

E-mail: [sales@quasarelectronics.com](mailto:sales@quasarelectronics.com)