The Phone Phreek like everyone else must keep pace with
technology. We therefore give you The Programable Blue
Box.

The Box presented here offers excellent stability with
both voltage and temperature. It uses 9 IC's, all of which
are readily available. And uses two ordinary 9 volt alkali-
line batteries. Current drain is relatively low — 24 ma.
in standby, about 30 ma. sending tones.

Circuit Description

When a key is pressed, the diode matrix in fig. 1 produces
a binary code on lines A through D corresponding to the
key pressed. Note the code 0000 is not used here, it is
reserved for 2600. Whenever a key is pressed the S line
also goes high, indicating a valid code on lines A thru D.
In fig. 3, lines thru D are fed into the 2519 = a hex
40 bit shift register. Only S out of the 6 shift registers
are used. The input of the 6th should be grounded. The S
line also goes to a debouncing circuit and schmitt trigger
composited of the two inverters and associated parts. The
NAND gate takes either the signal from the source of in-
or the system clock and generates the clock signal for the
shift register. This is a negative going pulse of about
20 us. So each time a key is pressed, the data at the input
to the SR is shifted in. An LED lights whenever a key is
pressed indicating this.

When all numbers are entered, and it is desired to send
tones, the SEND key is pressed. This key triggers a flip-
flip for each 2 NOR gates, and does 4 things. It inhibits
the input circuitry from the keyboard no more numbers
can be entered; it brings the resistors and line of the SR
high so the data is not lost once it is set; It enables
the output circuitry by way of the EO line; And it enables
the system clock to shift out the data.

When data is shifted out of the SR it appears on output
lines A thru D. In fig. 3, lines 0 thru 2 are fed into the
analog switches. Each group contains 16 switches. A binary
code at the input of these switches connects the correspond-
ing output to the 2 input of the 4051's. E.g. if the code 0111
is present at the input, output line 3 is connected to 2.
This is the output to the resistor at the decoder.

The 26C0 tone is generated by pressing the SELIZE key.
Each shift of the SR thus places data at the input of the
analog switches and selects the proper resistors for the 2
oscillator circuits. The outputs of the oscillators are
summed through the 3 3.5K resistors and sent to the
telephone earpiece. The tones are turned on and off by the
EO line. When all the tones are sent, the S line goes from
high to low and resets the send and clear flip-flops.

The basic operation of the box has just been described.
There are a few additional features that should be mentioned
however.

The CLEAR key triggers its own flip-flop and does 4 things.
When pressed, it first clears the SR memory when power was first applied, but I'm not sure
this will be the case with all units. Enter your desired
numbers by pressing the respective keys. The LED's should
light each line a key is pressed to signify acceptance of
that entry.

Next, call your favorite 800 number and press the SELECT key
for each digit. When you hear the tone, press the SEND
key. Cut costs a penny, and gives you a little extra time.

The DEL key is used when it is necessary to repete
sequences of numbers, such as for serial calls. E.g. To
call 44 1 246 447, enter KP C11 C44 ST then press the
del key and enter KP C44 1 246 C44 ST. Then press the
clear key, the first sequence will be repeated. Before
the second box will hold. Press the SEND key again and the sequence
will be sent.

I'd like to say a word about square wave and the Blue Box. For some reason some people seem to
think you can't use the square wave in this box. This is the only key that does not use the common bus.
When pressed, it enables the oscillators, and since the
only data at the input to the analog switches is CCCC when
MF tones are not being sent, the top oscillator generates
2600.

Construction

The easiest means of construction is wire wrap. With a
little care the box can be built quite compactly. All IC's
except the SR use only the plus 9 supply. The SR uses
plus and minus 12 volts. Both the VCC and the Vee of the 4511's
should be grounded. Vcc is plus 12. The input to the un-
used shift register should be grounded. DON'T DO ANY-
THING TO ITS OUTPUT. The trimpots should be 1C or 26
turn ceramic type construction. All resistors should be carbon
film not carbon composition. Carbon film offers better
temperature stability at the same price. The 2600 coil
and capacitors associated with the resistors must be poly-
stronite. The end with the band should be the grounded end.

The LM308 may seem like a power wasting frill to some, but
it isn't. It is at a place it can tell you if your data has
been accepted before battery power is clear.

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Taser guns zapped

Paras List

- Resistors
  - 2N391 or equiv.
  - 2N2SC7 or equiv.
  - 417
  - 4C1
  - 4049 INVERTER
  - 2519 40 bit hex SR
  - 4CS1 8 channel analog switch
  - 1C0 uf capacitor
  - 3300 µF polystyrene
  - 56C pf polystyrene
  - 10 cr
  - 2 turn

- SCK 9 Volt Alkaline Batteries

- Triapots, switches, etc.

- Taser guns
  - 'It was shades of Star Wars
  - The possession of the Laser gun
  - Like a GTA and generases the electromec'
GUARD BANDING
by Napoleon Solo

IF YOU USE A BOX, YOU PROBABLY HAVE HEARD OF GUARD BAND BUT PROBABLY DON'T KNOW EXACTLY HOW IT'S USED OR WHY IT'S USED. I WILL ATTEMPT TO EXPLAIN IT'S LEGIT PURPOSE, THEN EXPLAIN HOW A BLUE BOXER CAN USE THIS KNOWLEDGE TO HIS ADVANTAGE.

GUARD BAND IS A METHOD OF PREVENTING ACCIDENTAL DISCONNECTS FROM PEOPLE TALKING OR PLAYING MUSIC INTO THE PHONE LINE. IT SIMPLY MEANS IF ANY OTHER FREQUENCIES ARE PRESENT OTHER THAN 2600 HZ TONE, THE EQUIPMENT WON'T ALLOW A DISCONNECTS SO CLEARING THE LINE DOWN FOR ANOTHER CALL. IF ONLY 2600 WAS PRESENT THEN THE EQUIPMENT WILL CLEAR DOWN FOR ANOTHER CALL.

IN SOME OUTBACK AREAS IN THE COUNTRY MANY MILES FROM THE TOLL SWITCHING OFFICE, THE PHONE COMPANIES WILL USE A TRUNK LINE THAT IS CONTROLLED BY 2600 SO IF THE POTENTIAL BLUE BOX USER GOES AND HAPPLY TOOTS THE 2600 TONE TO CLEAR DOWN THE 800 NUMBER, THE TRUNK LINE WILL HEAR THE 2600 BEFORE THE TAM AND DISCONNECT YOU FROM THE CIRCUIT WITHOUT YOU GETTING A CHANCE TO "BOX" YOUR CALL. THE PHONE COMPANIES CAN MEASURE THIS AND IT IS HAPPENING IN MORE OF THESE TYPES OF CIRCUITS. NATURALLY THEY WOULDN'T HAVE TO INSTALL THEIR SPECIAL TOLL FRAUD DETECTING GEAR, SO BOXING FROM THESE TYPES OF AREAS IS USUALLY MUCH SAFER. STILL I DON'T RECOMMEND GOING IT HOME UNLESS YOU ARE CLEAR FOR GUARD BAND.

NOW I WILL TRY TO TELL YOU EXACTLY HOW YOU KNOW YOU WILL NEED GUARD BAND. I WILL FIRST EXPLAIN IT UNDER TWO CONDITIONS: 1. CALLING FROM A PAY PHONE GOING THROUGH AN OPERATOR AND 2. CALLING FROM A DIRECTLY DIALED CALL. NATURALLY IF IT IS POSSIBLE I WOULD RECOMMEND GOING THROUGH A DIRECTLY DIALED CALL.

IN CERTAIN OUTBACK AREAS, OPERATORS HAVE BEEN KNOWN TO BE AS FAR AS 250 MILES FROM THEIR SERVING AREA. AN EXAMPLE OF THIS IS DEATH VALLEY, CALIF. IF I CAN WITNESS UNDERSTAND WHY, IN DEATH VALLEY, THE OPERATORS ARE IN SAN BERNARDINO. THIS IS A HELL OF A DISTANCE FOR NORMAL OPERATOR TRUNKS SO FOR SIMPLICITY, IT'S EASIER TO SEND CALLS OVER MICROWAVE. THIS MEANS THAT IF YOU PLACE A CALL FROM THERE AND YOU TRY TO TOOT IT OFF WITH PURE 2600, YOU WON'T BE ABLE TO DO IT, INSTEAD, YOU WILL JUST FLASH THE OPERATOR. BY SENDING 2600, YOU ARE SIMPLY HANGING UP THE PHONE AS FAR AS THE OPERATOR IS CONCERNED.

THE SECOND THING YOU WILL EXPERIENCE WILL BE IF YOU WERE TO DIAL DIRECT CALLS WITHOUT GOING THROUGH THE OPERATOR. IF YOU TRY TO BLOW OFF CALLS DIRECT LIKE AN 800 NUMBER OR WHATEVER, YOU WILL EITHER GET DUMPED INTO SILENCE (USUALLY WHEN USING A PAYPHONE) OR A DIAL TONE (USUALLY WHEN CALLING FROM A RESIDENTIAL PHONE, IT'S USUALLY AN AT, JUST WON'T CLEAR ANYTHING. SOMETHING ON THESE SYSTEMS YOU WILL GET A RE-ORDER, OR A QUICK BUSY SIGNAL. IF YOU ARE SUCCESSFUL, YOU WILL HEAR A "KER-CHINK" SOUND AND STILL HEAR THE HOT NOISE OF THE LONG DISTANCE NOISE.

NOW I WILL EXPLAIN A LITTLE ABOUT FREQUENCY RESPONSE AND HOW THAT APPLIES WITH GUARD BANDING. THE LONG DISTANCE PHONE LINES CAN ONLY TRANSMIT FREQUENCIES FROM 300 HZ TO 3000 HZ WITHOUT LOSSES AS THE FREQUENCY GOES HIGHER THAN 3000 HZ, THE VOLUME OR "LEVEL" GOES DOWN (GETS SOFTER), SO THE TRICK OF THE TRADE IS TO INSERT A 3150 OR 3200 HZ TONE MIXED WITH THE 2600 HZ TONE JUST LIKE THE HUMAN SOUND MIXED IN THE BOX, BUT IT'S VERY IMPORTANT THAT YOU MUST BE ABLE TO MIX ANY FREQUENCY OF THE 3200 AND 2600 HZ TONE. LIKE 40% 2600 AND 60% 3200 OR 49% 3200 AND 51% 2600 TONES. THIS CAN BE DONE WITH A KNOB WHEN TURNED IN ONE DIRECTION THE BOX SENDS PURE 2600 THEN AS THE KNOB IS TUR- ED, AND MORE 3200 COMES THROUGH AND LESS AND LESS 2600. THIS WAY, YOU CAN "PREVIOUSLY" EXACTLY THE CORRECT "MIX" UNTILL YOU GET RESULTS, THE EASIEST WAY TO DO THIS IS BY SETTING THE KNOB UNTILL IT JUST WON'T CLEAR ANYTHING. THEN AS THE KNOB IS TUR- ED, MORE 3200 RELEASES THE TONE EACH TIME UNTILL YOU HEAR THE FAMILIAR "KER-CHINK" SOUND ONE HEARS WHEN "BLOWING OFF" THE 800 NUMBER OR WHATEVER YOU ARE USING GUARD BAND IS THE METHOD WHICH IS USED FOR STACKING TRUNKS. AS YOU PROBABLY HEARD IN SO MANY PUBLICATIONS, IT WAS ALSO USED TO ACCESS AUTO-VERIFY BY COMING INTO A SWITCHING MACHINE FROM TRUNKS THAT ARE CLASS MARKED FOR AUTOVERIFY USAGE. GUARD BAND CAN ALSO BE USED TO GET INTO AUTOVERIFY AND OTHER INTERESTING SYSTEMS. SO AT THIS TIME, I WILL LEAVE IT UP TO YOUR OWN IMAGINATION AS TO WHAT YOU CAN DO WITH IT.

Bank gave dealer too much credit
JERSEY CITY (AP) — Jersey City police are looking for a coin dealer who disappeared with $100,000 after a computer made an error in his bank account. His account number differs by only one digit from the account.

Charles Walsh, 52, had only $85 in his account at the Jersey City Commercial Trust Co., when a key punching operator hit the wrong key and credited two $50 checks which belonged in a commercial account to Walsh's account. It wasn't until Feb. 9 that the bank officials uncovered the error and notified police to try to trace the $100,000.

Now police are trying to determine how the $100,000 was divided and where it went. They won't have to install their special toll telephone equipment.

The bank statement showed his account to be $92,085 and police said, the account had a balance of $100,085 as of Feb. 9.

It wasn't until Feb. 9 that the bank officials uncovered the error and traced the $100,000. Police who went to Walsh's home found the doors locked, the sidewalk unshoveled, and the mailbox full of letters.

A warrant was issued for his arrest after he failed to appear in court Tuesday to answer the complaint that he defrauded the bank of $100,000.