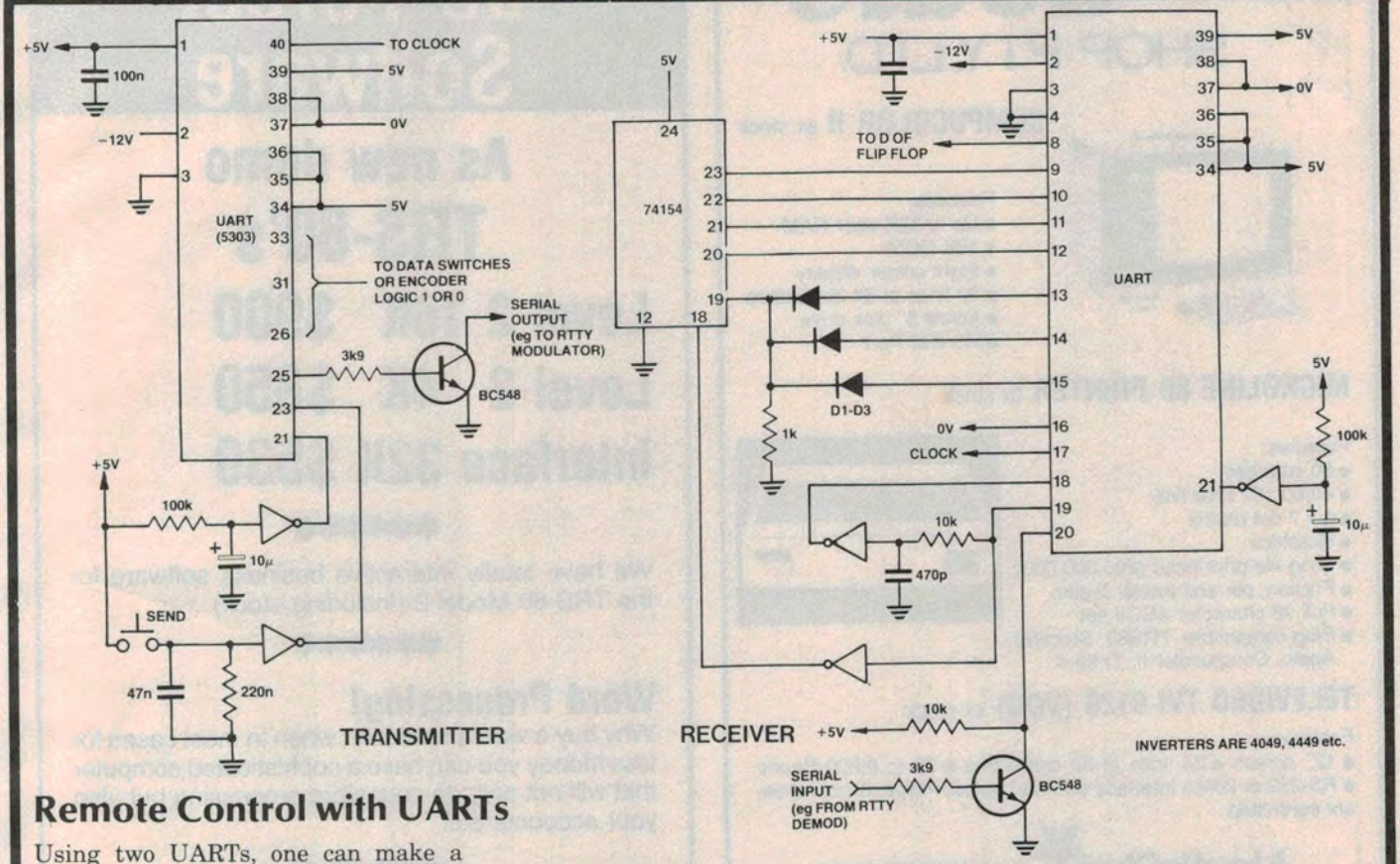
Ideas for Experimenters



Remote Control with UARTs

Using two UARTs, one can make a simple remote control system as **Ralph Youie of Oakleigh in Victoria** shows here. One UART is used as the transmitter and sends a binary word of, say, five bits. This word may be transmitted by radio, ultrasonics, infra-red etc. The receiver then converts the serial data into parallel data which can be decoded by logic devices, such as a 4-16 line decoder (74154). Each output of this decoder can be connected to the clock input of a 'D' type flip-flop, and the fifth bit can be connected to the 'D' input. Thus, a five-bit word programmed on the transmitter can control 16 flip-flops and hence 16 devices in two states. With a little more logic, one could control 16 devices in 16 states, 128 devices in two states, 64 devices in four states etc., using eight-bit words.

The circuit shown is just one possibility as many factors could be changed, such as clock rate, modulation system, word size, parity and transmission method to name a few. In the circuit, D1-D3 form an OR-gate which prevents the 74154 from operating if an error is found in the word received. Ralph used an RTTY system for the mod-demod and slide switches to program the code word on the transmitter. However, a refined system could use a keypad with encoder.

Possibilities include remote control of television, hi-fi, solenoid tape decks, lights, garage doors etc . . . limited only by imagination.

UART pin connections:

1: Vss	2: Vgg	3: Vdd	4: RDE	5: RD 7
6: RD 6	7: RD 5	8: RD 4	9: RD 3	10: RD 2
11: RD 1	12: RD 0	13: RPE	14: RFE	15: ROR
16: SWE	17: RCP	18: RDAR	19: RDA	20: RSI
21: MR	22: TBMI	23: TDS	24: TEOC	25: TSO
26: TD 0	27: TD 1	28: TD 2	29: TD 3	30: TD 4
31: TD 5	32: TD 6	33: TD 7	34: CS	35: NPB
36: NSB	37: NDB 2	38: NBD 1	39: POE	40: TCP

RDE Receive Data Enable (tri-states data line)
SWE Status Word Enable
RCP, TCP clock input
RPE, RFE, ROR parity, frame, and receive overrun errors.
MR master reset
NSB 1 or 2 stop bits
POE odd or even parity
RSI, TSO serial input, output
TDS send transmit data
NPB parity inhibit
NDB no of data bit 5,6,7 or 8
RDA, RDAR Received data, Received data reset