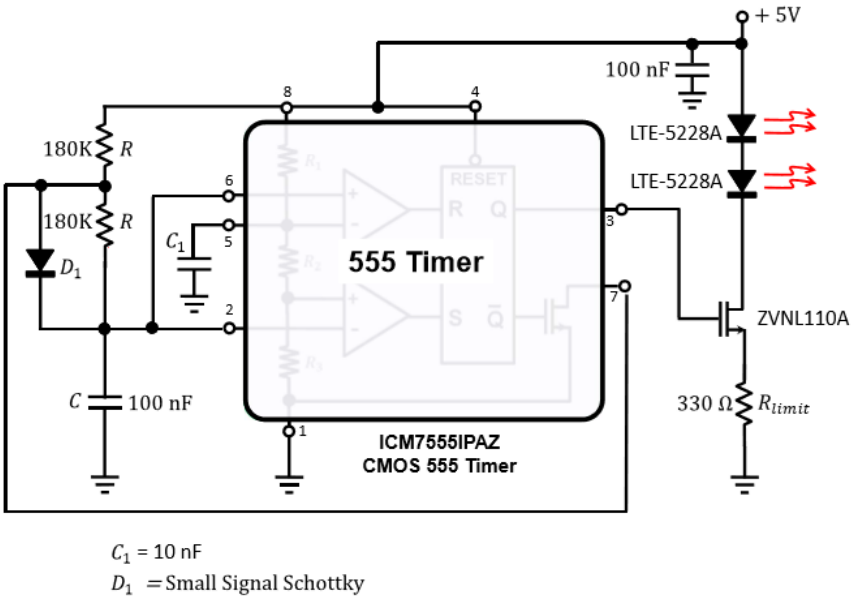
Transmitter Schematic

The figure shows the schematic for the transmitter. The 555 timer is configured as an astable , and D_1 ensures the duty cycle is 50%. The 200K resistors and the capacitor C determine the modulation frequency. Note that the circuit shows two LEDs connected in series in the prototype transmitter. Using two LEDs instead of one provides a stronger signal at the receiver, and also provides some tolerance for misalignment.



C_1 = 10 nF
D_1 = Small Signal Schottky

Transmitter Schematic

Bill of Materials

The table below lists the parts for the transmitter. It also lists the photodetector that matches the spectral characteristics of the IR emitter.

Part	Value	Quant	Tx/Rx
R	200K, 5%, ¼W	2	Tx
R_{limit}	330Ω, 5%, ¼W	1	Tx
C	6.8 nF Ceramic	2	Tx
C_1	10 nF Ceramic	1	Tx
D_1 Small-signal Schottky diode		1	Tx
IR LEDs	LTE-5228A	2	Tx
555 CMOS Timer	ICM7555IPAZ	1	Tx
Photodetector	OP505A	1	Rx
FET	ZVNL110A	1	Tx

(Partial) Bill of Materials