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A DEVICE AND APPLICATION BASED WIRELESS CHARGE DISTRIBUTION

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OBJECTIVE:

In recent decade, wireless devices and its applications taking more advantage then wired technologies. For example wireless routers are used for broad band connections, wireless cords are used instead of wired landline phones etc...,

After the mobile phone's revolution everyone needs their phone to be in full charge (100%). Hence lots of inventors are trying their level best to invent the wireless charging devices and its application. By this time, we introduce the android platform application to share the mobile phone's battery power from one to another, wirelessly.

Though lots of inventors are trying their level best to invent the wireless charging devices and its application. Hence, we proudly introduce the device cum android platform application to share the smart phone's charge from one to another phone wirelessly, which will be very useful in critical situation like less than 5% charge on smart phone.

INTRODUCTION TO WIRELESS CHARGING:

Though maximum number of peoples are using android applications in their daily life, we are using lots of applications which are very helpful on daily basis.

By inspiring on that, we introduce the app for charging our mobile phones from one to another wirelessly.

In communication all the datas are converted into radio frequencies and transmitted over a distance. By using this method, here the device which is transmitting the smart phone's battery voltage (DC) to radio frequency form and will be received by the receiver by converting the radio frequency to (DC) voltage which can charge the other smart phone. Hence the charge from the smart phone is shared from one phone to another one..

BASIC OUTLOOK OF WIRELESS CHARGING APP:

Our app consists of connection based notification regarding with the establishment of the wireless charging. Every mobile which consists of its basic frequency range by which the frequency is converted into voltage using Wireless charging application.

PRINCIPLE AND OPERATION:

In this application the DC volt is converted into Radio frequency signals (Using LM331DC to frequency converter) from the source device to the destination device and the destination device will reconvert the RF signals into DC volt to charge the receiver device(Using LM231 Frequency to DC volt converter).

Since the DC voltage is converted into data bits and transmitted, the discharging of the source device will not cause any harm to the device's performance, since it's not directly discharged as DC voltage.

The LM331 voltage-to-frequency converters are ideally suited for use in simple low-cost circuits for analog-to-digital conversion, LM231precision frequency- to-voltage conversion, long-term integration, linear frequency modulation or demodulation, and many other functions.

The output when used as a voltage to-frequency converter is a pulse train at a frequency precisely proportional to the applied input voltage.

Thus, it provides all the inherent advantages of the voltage-to-frequency conversion techniques, and is easy to apply in all standard voltage-to-frequency converter applications. The timing function consists of an R-S flip-flop and a timer comparator connected to the external RtCt network.

When the input comparator detects a voltage at pin 7 higher than pin 6, it sets the R-S flip-flop which turns ONthe current switch and the output driver transistor. When the voltage at pin 5 rises to ⅔ VCC, the timer comparator causes the R-S

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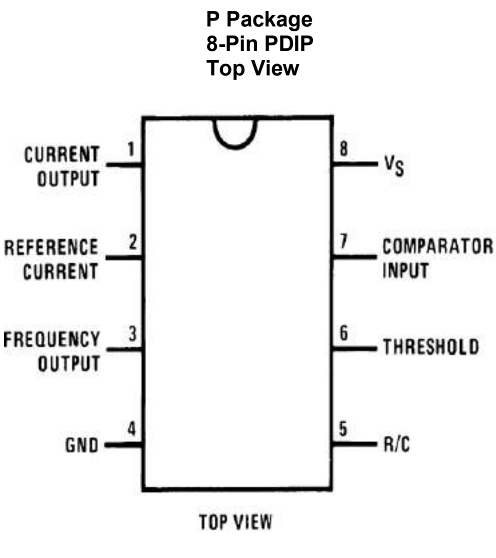
flip-flop to reset. The reset transistor is then turned ON and the current switch is turned OFF.

However, if the input comparator still detects the voltage on pin 7 as higher than pin 6 when pin 5 crosses ⅔VCC, the flip-flop will not be reset, and the current at pin 1 will continue to flow, trying to make the voltage at pin 6higher than pin 7.

This condition will usually apply under start-up conditions or in the case of an overload voltage at signal input. During this sort of overload, the output frequency will be 0. As soon as the signal is restored to the working range, the output frequency will be resumed.

LM231/331PIN DIAGRAM:



DESCRIPTION:

The LM331 voltage-to-frequency converters are ideally suited for use in simple low-cost circuits for analog-to-digital conversion, precision frequency- to-voltage conversion, long-term integration, linear frequency modulation or demodulation, and many other functions.

The output when used as a voltage to-frequency converter is a pulse train at a frequency precisely proportional to the applied input voltage. Thus, it provides all the inherent advantages of the voltage-to-frequency conversion techniques, and is easy to apply in all standard voltage-to-frequency converter applications.

Further, the LMx31A attain a new high level of accuracy versus temperature which could only be attained with
expensive voltage-to-frequency modules.
Additionally, the LMx31 are ideally suited for use in digital systems at low power supply voltages and can provide low-cost analog-to-digital conversion in microprocessor-controlled systems.

And, the frequency from a battery-powered voltage-to-frequency converter can be easily channeled

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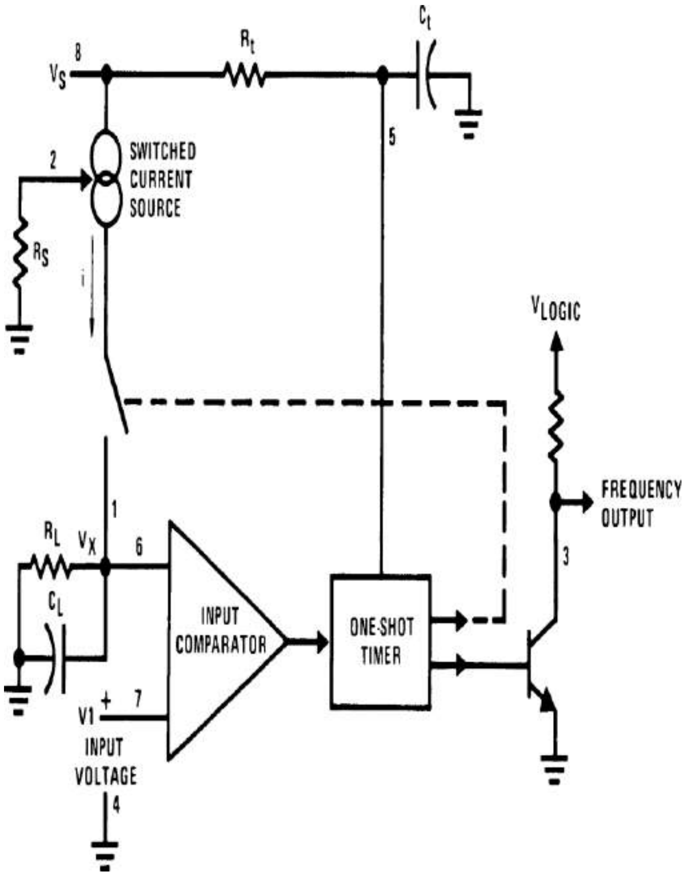
through a simple photo isolator to provide isolation against high common-mode levels.

The LMx31 uses a new temperature-compensated band-gap reference circuit, to provide excellent accuracy over the full operating temperature range, at power supplies as low as 4 V. The precision timer circuit has low bias currents without degrading the quick response necessary for 100-kHz voltage-to-frequency conversion. And the output is capable of driving 3 TTL loads, or a high-voltage output up to 40 V, yet is short-circuit-proof against VCC.

DC VOLTAGE TO FREQUENCY CONVERTER:



In this circuit, integration is performed by using a conventional operational amplifier and feedback capacitor, CF.
When the integrator's output crosses the nominal threshold level at pin 6 of the LMx31, the timing cycle is Initiated.

The average current fed into the summing point of the op-amp (pin 2) is i × (1.1 RtCt) × f which is perfectly balanced with −VIN/RIN. In this circuit, the voltage offset of the LMx31 input comparator does not affect the offset

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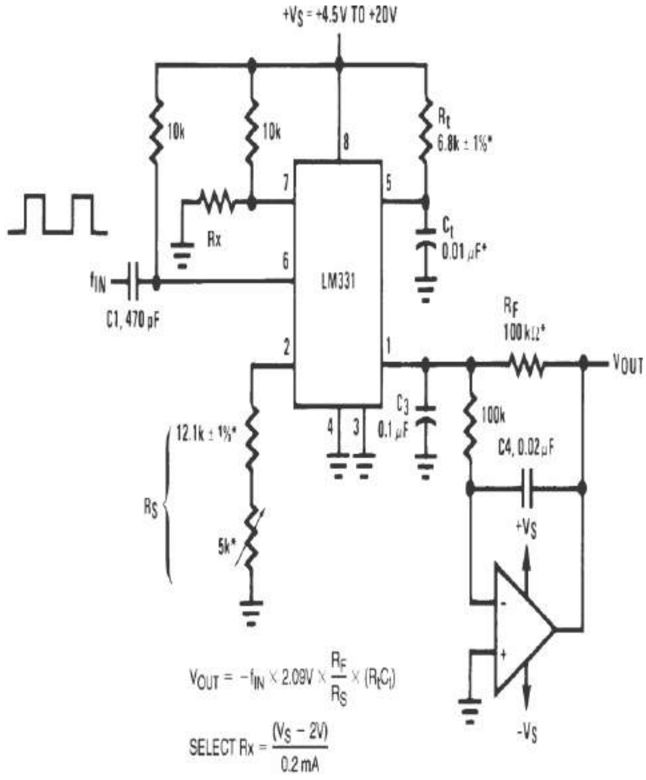
or accuracy of the V-to-F converter as it does in the stand-alone V-to-F converter; nor does the LM231/331 bias
current or offset current. Instead, the offset voltage and offset current of the operational amplifier are the only
limits on how small the signal can be accurately converted. Since op-amps with voltage offset well below 1 mV
and offset currents well below 2 nA are available at low cost, this circuit is recommended for best accuracy for
small signals.

This circuit also responds immediately to any change of input signal (which a stand-alone circuit does not) so that the output frequency will be an accurate representation of VIN, as quickly as the spacing of the
2 output pulses can be measured.
In the precision mode, excellent linearity is obtained because the current source (pin 1) is always at ground potential and that voltage does not vary with Vin or fout. (In the stand-alone V-to-F converter, a major cause of non-linearity is the output impedance at pin 1 which causes i to change as a function of Vin).

FREQUENCY TODC VOLTAGE CONVERTER:



In this circuit, a pulse input at fin is differentiated by a C-R network and the negative-going edge at pin 6
causes the input comparator to trigger the timer circuit. Just as with a V-to-F converter, the average current
flowing out of pin 1 is IAVERAGE = i × (1.1 RtCt) × f.
In the simple circuit of previous circuit, this current is filtered in the network RL = 100 kΩ and 1 μF. The ripple will be less than 10-mV peak, but the response will be slow, with a 0.1 second time constant, and settling of 0.7 second to 0.1% accuracy.
In the precision circuit, an operational amplifier provides a buffered output and also acts as a 2-

pole filter. The ripple will be less than 5-mV peak for all frequencies above 1 kHz, and the response time will be much quicker than in previous circuit. However, for input frequencies below 200 Hz, this circuit will have worse ripple than previous circuit. The engineering of the filter time-constants to get adequate response and small enough ripple simply requires a study of the compromises to be made. Inherently, V-to-F converter response can be fast, but F-to-V response cannot be fast. In this application the DC volt is converted into data bits & the data bits are converted into Radio frequency signals (Using LM331DC to frequency converter) from the source device to the destination device and the destination device will reconvert the data bits & RF signals into DC volt (5V) to charge the receiver device (Using LM231 Frequency to DC volt converter).
Since the DC voltage is converted into data bits and transmitted, the discharging of the source device will not cause any harm to the device's performance, since it's not directly discharged as DC voltage.

CONCLUSION:

In future, every smart phone will have this design to transfer the battery power from one phone to another like transferring data to one phone from another. This circuit implementation may carry forward not only for smart phones but also for laptop computers.

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