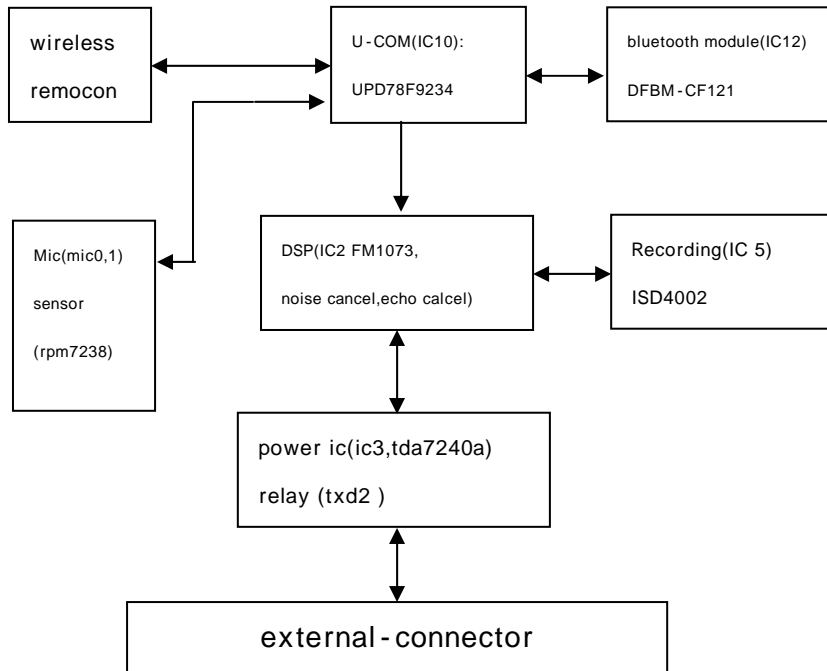Operating description

1. This device is Bluetooth handsfree car kits.

   Seamless, wireless hands free audio through Bluetooth connection

2. block diagram

```
┌──────────────┐       ┌──────────────────┐       ┌──────────────────────┐
│  wireless    │ <───> │  U- COM(IC10):   │ <───> │ bluetooth module(IC12)│
│  remocon     │       │  UPD78F9234      │       │  DFBM- CF121          │
└──────────────┘       └──────────────────┘       └──────────────────────┘
                              │
                              │
        ┌─────────────┐       ▼
        │ Mic(mic0,1) │     ┌──────────────────┐       ┌──────────────────┐
        │ sensor      │ <── │ DSP(IC2 FM1073,  │ <───> │ Recording(IC 5)  │
        │ (rpm7238)   │     │ noise cancel,echo calcel) │ ISD4002          │
        └─────────────┘     └──────────────────┘       └──────────────────┘
                                   │
                                   ▼
                        ┌──────────────────────┐
                        │ power ic(ic3,tda7240a)│
                        │ relay (txd2 )         │
                        └──────────────────────┘
                                   │
                                   ▼
                 ┌─────────────────────────────────┐
                 │      external- connector        │
                 └─────────────────────────────────┘
```

1. Bluetooth module: Wireless communication module

   This is consist of flash rom,BC2 core,eeprom and codec.

2.U- COM: The MCU controls Bluetooth module,recording

   Wireless remocon, DSP and mic & sensor.

3. DSP : Echo canceller/noise suppressor is ideal for hands-free mobile

   communication such as Hands Free Car Kit, or Telematics applications.

   This supports small array microphone.

The DSP integrates a high-speed voice signal processor with on-chip ROM,
RAM, pre-amplifiers, and multiple CODECs into a single 48 pin package. With
differential inputs/outputs, DSP minimizes the RF interference and white noise.
The offer of universal support of up to 2 microphones allows customers to select the
microphone configuration depending on the applications. This device can be used with a
single microphone for the lowest cost solution, or use two/three microphone to suppress

severe noise as well as to increase the voice recognition rate.

Its digital interface (UART, SHI, and CHI bus) allows the command/data access to/from a Bluetooth controller, host processor, or mobile phones. As an option, more custom features can be programmed through an external optional EEPROM

4. POWER : car battery

IC 6(dc 9v) supplies   tel mute transistor Q5,Q6,Q7,Q8 and IC 7.

IC 7 (dc 5v) supplies op amp ic 11, signal amplifier and IC 8.

IC 8 (dc 3.3v) supplies recording ic, Bluetooth module and IC9.

IC 9 (dc 2.5v) supplies DSP and mic pull up.

5. power amplifier: IC3

This is amplifier the small signal of DSP output and drive speaker.

6. recording: IC 5

IC5 records DSP signal and mic signals and then playback voice.

7. ANT

The ant radiate and receive the RF SIGNAL.

8. EXTERNAL CONN

Wire harness connect the power supply,signal,tel mute,etc.