

LAYOUT BACKGROUND SOUND CLINIC

MER CONVENTION
F.MILLER - 2018

SOUND DEVICES WITH PRE-RECORDED SOUNDS

RAM Track \$39.95
229 E. ROLLINS RD
ROUND LAKE BEACH, IL
60073 USA
(847) 740-8726
FAX: (847) 740-8727
WWW.CORPTECH-START.COM

MRC
Model Rectifier Corporation
\$75 (\$30)

Innovative Train Technology Co.
\$33.95

ALTERNATIVE APPROACHES FOR OPERATING BACKGROUND SOUND

- CONTINUOUS, E.G. TAPES /CDs
- TRIGGER BY TIMER OR SWITCH
- TRIGGERED BY ACTIVITY E.G., CROSSING BELLS

ITT Products



~ 60 SECONDS

(INCLUDES AMP BUT NO SPEAKER)

\$33.95

- HQ400 Cow
- HQ401 Cattle
- HQ405 Sheep
- HQ410 Chickens/Rooster
- HQ410-1 MallardDucks
- HQ415 Pigs
- HQ420 Barnyard
- HQ425 Puppies
- HQ430 Horse Trotting
- HQ431 HorseStall
- HQ432 ZooAnimals
- HQ500 Thunder
- HQ505-1 WoodlandBirds
- HQ505-2 WoodlandBirds/Brook
- HQ506-1 BrookFast
- HQ506-2 BrookSlow
- HQ510-1 NightSounds
- HQ510-2 NightSounds withBrook
- HQ516 Waterfall
- HQ520 Ocean Seagulls-Foghorn
- HQ550-1 BritishCountryside
- HQ550-2 CoastalCalmSailing
- HQ550-3 CoastalSunsetSeaBirds
- HQ550-4 CountryMeadow
- HQ550-5 CountryStable
- HQ550-6 CuckooForest
- HQ550-7 EveningLoons
- HQ550-8 ForestBrook
- HQ550-9 ForestStream
- HQ550-10 Gallien
- HQ550-11 Harbor
- HQ550-12 IndianForest
- HQ550-13 JustBirds
- HQ550-14 LakeatDusk
- HQ550-18 LilyPond
- HQ550-16 MountainStream
- HQ550-17 Nightingales
- HQ550-18 OceanNight

SIMPLE BUT LEAST FLEXIBLE APPROACH:



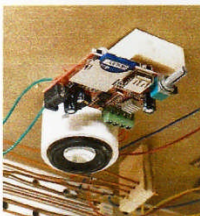
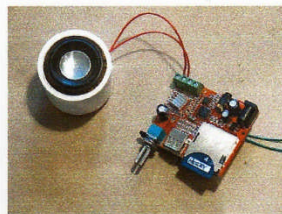
PLAY CDs OR TAPES
ON AN INEXPENSEVE PLAYER
(NEED ON/OFF SWITCH, SOUNDS AND AMP)

SELECTION OF SOUND BOARD PLAYERS

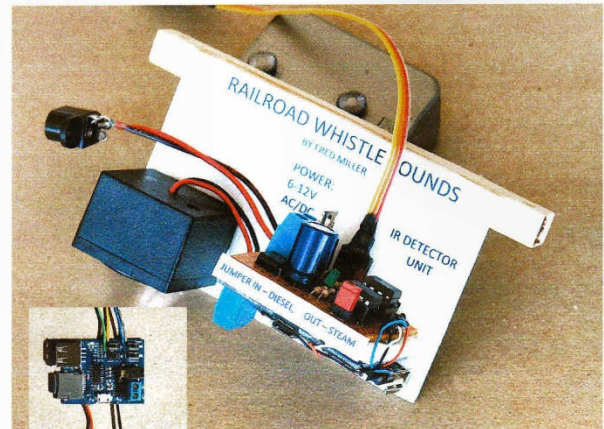
USER SUPPLIED SOUNDS REQUIRED

RADIO SHACK -\$12.00		20 SECONDS OF MINIMAL QUALITY SOUND. SINGLE TRACK CAN BE EXTERNALLY TRIGGERED.
Ebay Stores -\$10.00		PLAY MULTIPLE TRACKS FROM STANDARD SD CARD. MP3 QUALITY. EXTERNAL CONTROLS POSSIBLE.
Pricom -\$40.00		HIGH (CD) QUALITY SOUNDS PLAYED FROM MULTIPLE TRACKS ON MICRO SD CARDS. EXCELLENT CONTROLS STORED ON SD CARD.
eBay Stores -\$3.00		PLAY MP3 QUALITY SOUNDS FROM MULTIPLE TRACKS ON MICRO SD CARD. NO SOFTWARE CONTROLS BUT POSSIBLE BRIDGING BUTTONS
eBay Stores -\$5.00		PLAY MP3 QUALITY SOUNDS FROM MULTIPLE TRACKS ON MICRO SD CARD. ROBUST CONTROLS THROUGH SOFTWARE SERIAL COMMANDS.






\$10.95



INEXPENSIVE
BUT GOOD
SOUNDS

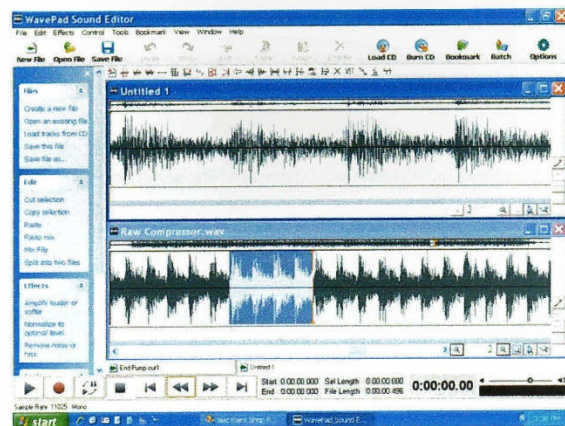
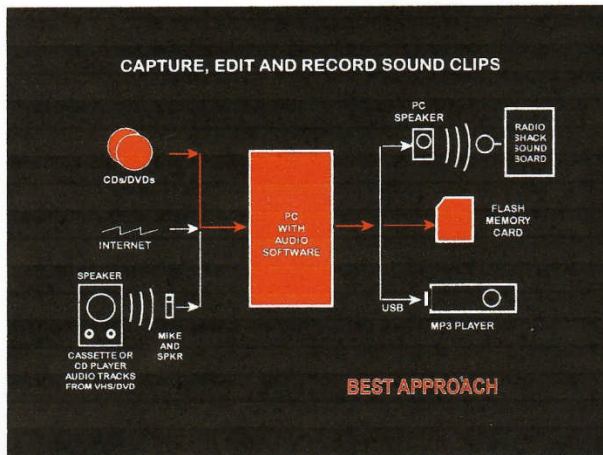


SOUND ACTIVATION ALTERNATIVES

-  ➤ Momentary push button
-  ➤ Toggle Switch
-  ➤ Relay
-  ➤ Open Collector including Micro-controller
-  ➤ OptoCoupler

SOURCES FOR SOUNDS

- ALREADY PRESENT ON BOARDS (E.G. ITT BOARD)
- "COPY" FROM AUDIO OR VIDEO TAPE/DVD
- ONLINE OR COMMERCIAL SOUND EFFECTS
- EDIT SOUND FILES WITH PC SOFTWARE

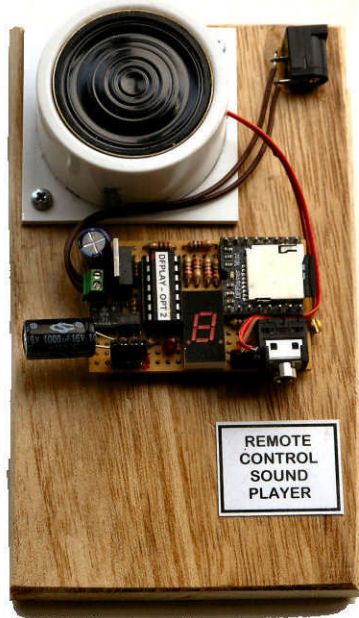


REFERENCES - BACKGROUND SOUNDS - JULY 2018

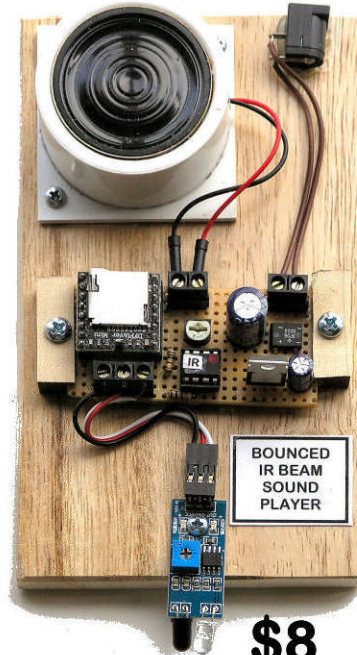
	Device or Part Item	Info/Availability	Cost
1	RadioShack 20-Second Recording Module 276-1323	RadioShack.com/stores	\$9
2	ITT Products (Innovative Train Technology Products) sound module	ITTPproducts.com/Other MR stores	\$40
3	Pricom Design DreamPlayer Lite – High Quality Wav file player	Pricom.com	\$39
4	"New Amplifier Board DC 10W Class D 12V + Remote Control"	http://stores.ebay.com/ce10wy	\$11
5	MP3 Sound Board	Buyincoins.com	\$3
6	DFPLAYER mini MP3 Player Board	http://aliexpress.com	\$3
7	FantaSonics sound CDs	www.fantasonics.com	\$25
8	1 1/2" Full Range Speaker Jameco # 2126061	www.jameco.com	\$3
9	1" Speaker in enclosure	www.allelectronics.com	\$2
10	Electronics components (resistors/capacitors/leds, etc.)	Jameco, Digikey, Mouser	various
11	2- 4 GB SDHC flash memory card	eBay Stores	\$3
12	Digitrax SFX004/SFX006 Sound Bug Decoder	TonysTrains.com/Other MR stores	\$50/\$40
13	RamTrack Sound Boards	www.ramcardramtrack.com	\$34
14	MRC AA552 City & Country Sound Station	Various online stores, ebay, amazon	\$60
15	WavePad - Sound editing software	www.nch.com.au	Free
16	Audacity - Sound editing software	www.audacity.soundforge.net	Free
17	Fred Miller's email: tractionfan@aol.com and website: http://www.fnbcreations.net/tractionfan/index.html		Free
18	Layout Sound discussion group	http://groups.io	Free

CLINIC DEMONSTRATION PLAYERS

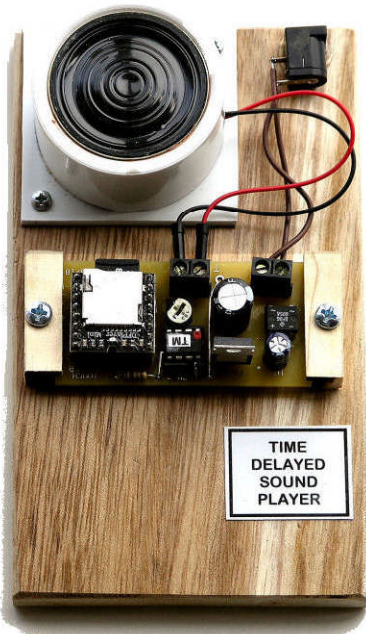
FIVE DIFFERENT ACTIVATION SCHEMES



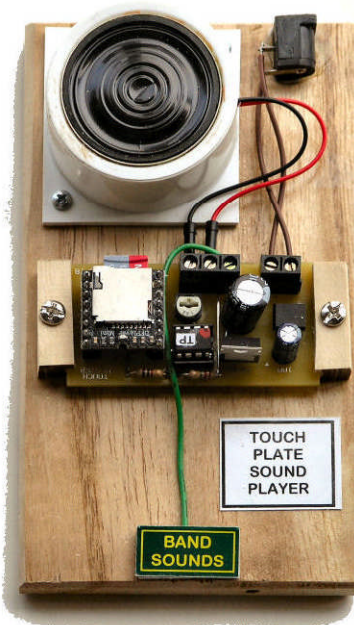
\$10



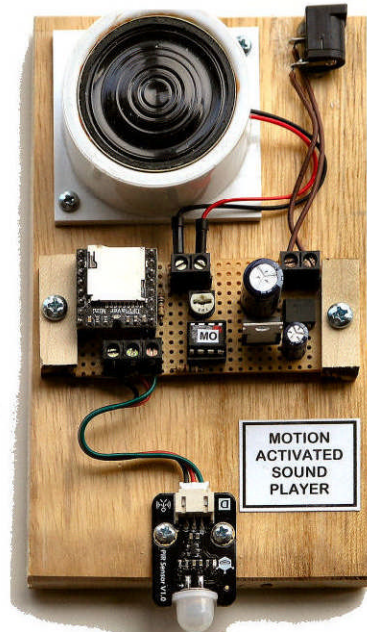
\$8



\$8

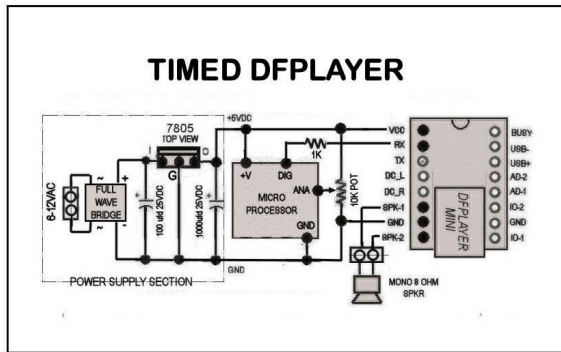


\$7



\$12

STEPS TO DESIGN AND BUILD ELECTRONIC PROJECT



STEP 1 - DESIGN CIRCUIT

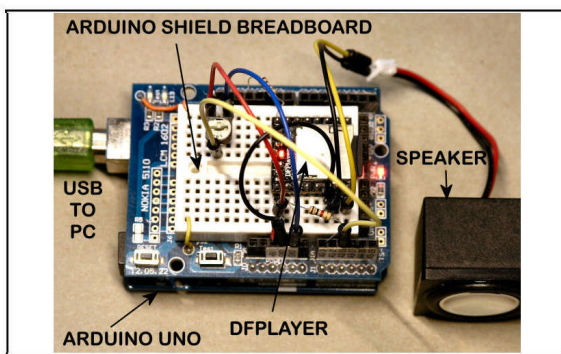
```
void loop() {
  currentMillis = millis();
  if(currentMillis - previousMillis >= 100 && playOn) { //check for volume
    previousMillis = currentMillis;
    Serial.println(analogRead(volPin));
    playVol = map(analogRead(volPin), 0, 1024, 10, 30);
    setvol_cmd(playVol); // set vol per pot setting
  }

  if (currentMillis - prevClickMillis > timer)
  {
    playOn = true;
    playtrk_cmd(1); //play track 1
    Serial.println("Playing");
    delay(1000); //settle down fr
  }

  if (digitalRead(playingPin) == HIGH && play
  playOn = false;
  Serial.println("Stop");
  prevClickMillis = millis(); //initial
}
```



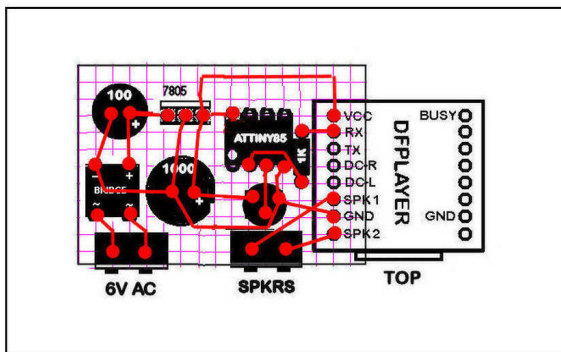
STEP 2 - DEVELOP CODE



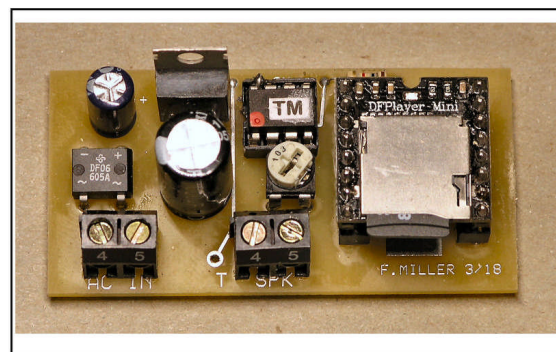
STEP 3 - BREADBOARD TEST



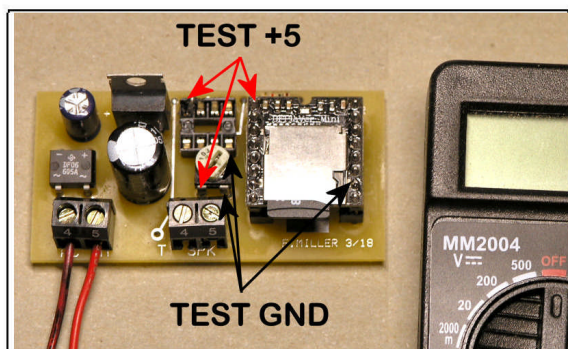
STEP 4 - CONVERT ATTINY



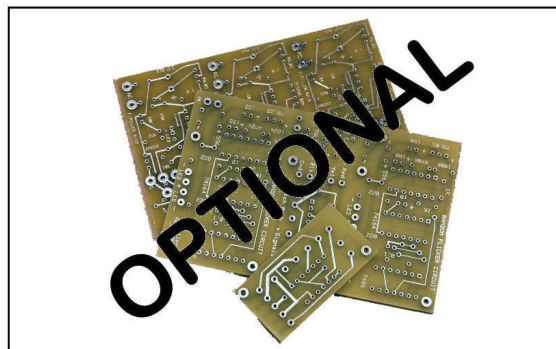
STEP 5 - BOARD DESIGN



STEP 6 - CONSTRUCT BOARD



STEP 7 - TEST CIRCUIT



STEP 8 - MAKE PCBs