

# A \$29 Interlock System to prevent Carbon Monoxide Deaths

*...built, tested and demo in less than 2 hours.*

Kos Galatsis  
Material Science and Engineering  
Department, UCLA  
6/30/2013

**PROBLEM:** Portable gasoline generators and many CO generating appliances account Carbon Monoxide deaths annually.



**SOLUTION:** A interlock system can *switch off* generator engine or furnances when excessive CO levels are detected, and hence preventing deaths.

**OBJECTIVE:** To demo a low cost carbon monoxide interlock system attached and integrated to a portable generator.

**PARTS :**

1. CO detector (\$25)



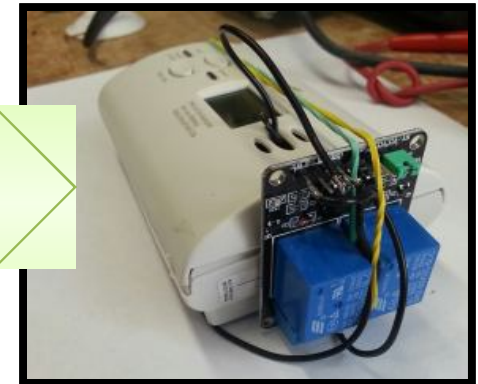
2. Electromechanical Relay (\$4)



3. Generator



# CONSTRUCTION



**METHOD:** Obtained alarm signal from CO detector and connected to relay (labor time = 1 hour)

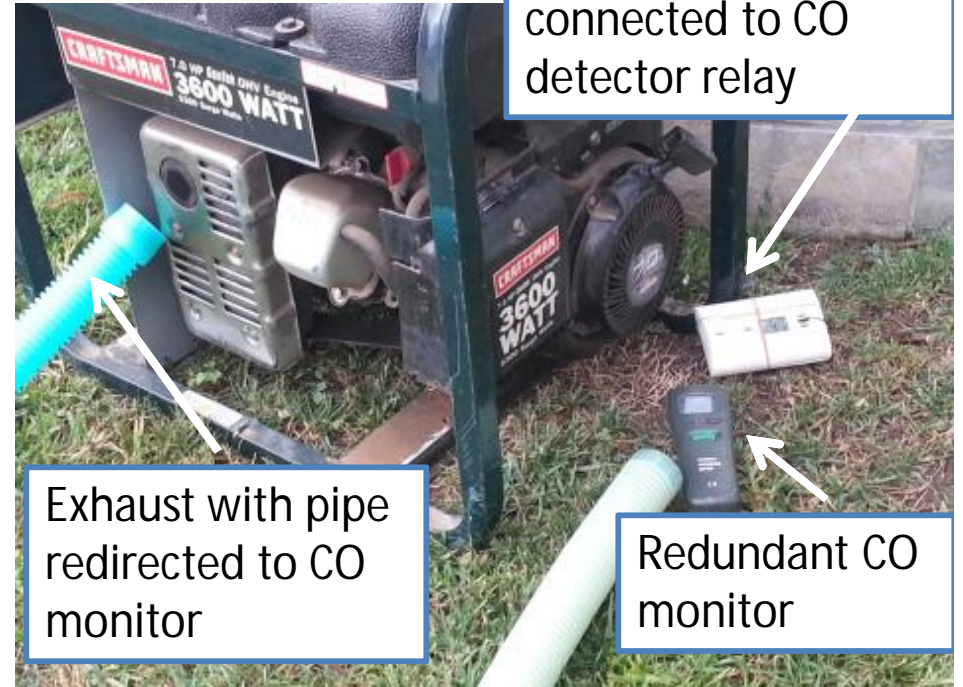
# INTEGRATION



**METHOD:** Connect Relay to On/Off generator switch to enable SWITCH OFF when CO detector triggers (labor time = 0.5 hours)



# TESTING & DEMO



**BENCHTOP TEST:** Sample of exhaust gas in a bag and placed detectors. Relays switches & works!

**PIPE TEST:** In 2 minute CO levels increase above 999ppm and generator switched OFF & works!

# CONCLUSIONS

1. A low cost \$29 Interlock System built in less than 2 hours can prevent Carbon Monoxide Deaths.
2. Existing off-the-shelf technology exists to built a low cost CO interlock system.
3. Deaths and injuries caused by CO poisoning generated by combustion engines is totally preventable.