



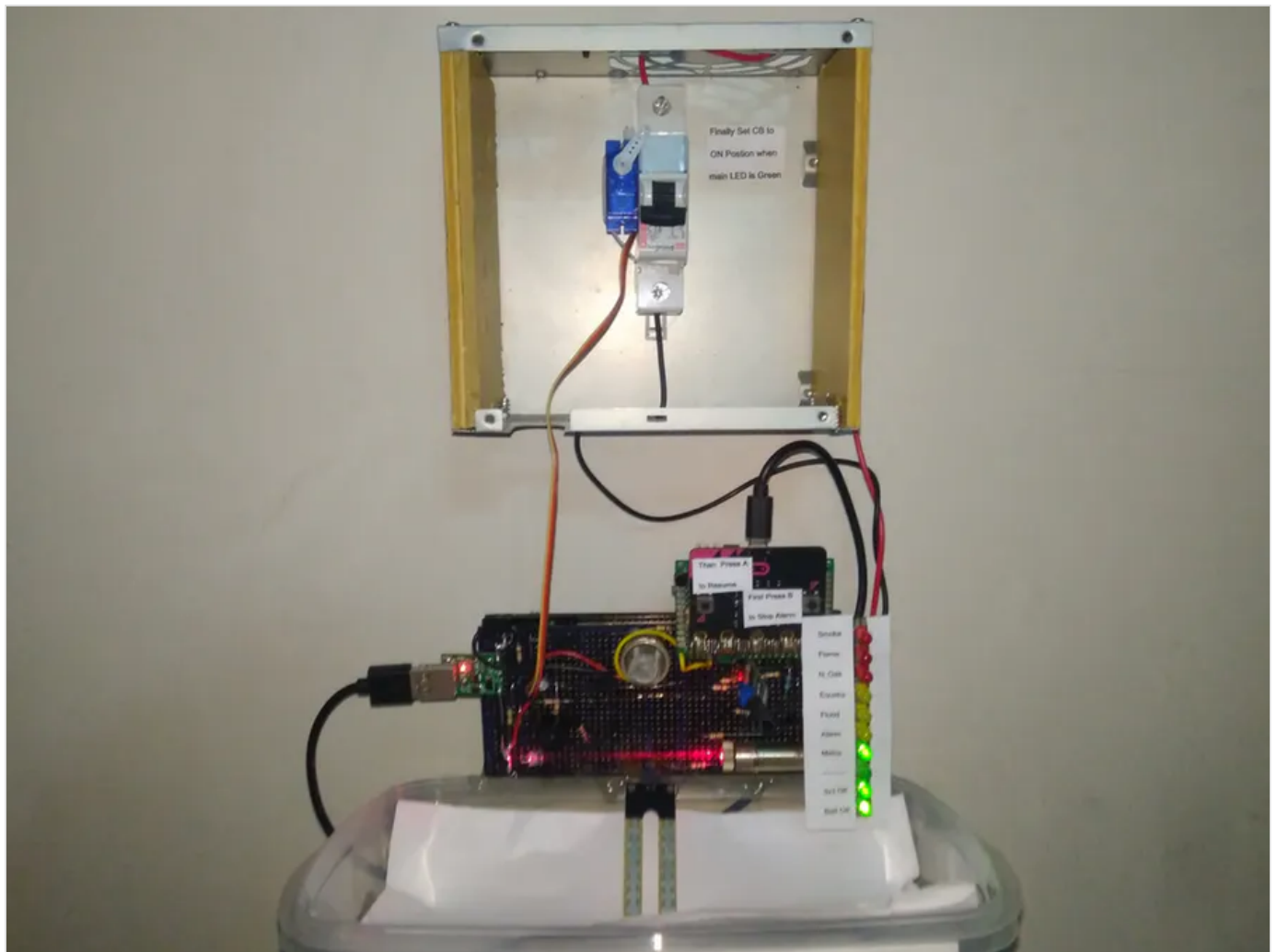
Shahariar (/PSoC_Rocks)

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Disaster Management with Smart Circuit Breaker

Ensuring Safety against Electrical Fire or Shock during Earthquake, Flood, Gas Leakage & Fire Breakout by Disconnecting Mains with Smart CB

🔊 Intermediate(/projects?difficulty=intermediate) 📖 Full instructions provided ⌚ 10 hours 👁 518




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Things used in this project

Hardware components

 BBC micro:bit board (/microbit/products/bbc-micro-bit-board? ref=project-588163)	× 1	https://products.buy/43774? s=BAhJIhMxNzZM2ODUsUHJvamVjdAY6BkVG%0A)	✓
Flame Sensor	× 1	https://products.buy/64808? s=BAhJIhMxNzZM2ODUsUHJvamVjdAY6BkVG%0A)	
Natural Gas Sensor	× 1	https://products.buy/64809? s=BAhJIhMxNzZM2ODUsUHJvamVjdAY6BkVG%0A)	
Water sensor	× 1	https://products.buy/64810? s=BAhJIhMxNzZM2ODUsUHJvamVjdAY6BkVG%0A)	
Photo transistor	× 1	https://products.buy/64813? s=BAhJIhMxNzZM2ODUsUHJvamVjdAY6BkVG%0A)	
Laser Module	× 1	https://products.buy/66178? s=BAhJIhMxNzZM2ODUsUHJvamVjdAY6BkVG%0A)	
DC-DC 3.7v to 5v boost converter module	× 1	https://products.buy/66179? s=BAhJIhMxNzZM2ODUsUHJvamVjdAY6BkVG%0A)	
LiPo Charger	× 1	https://products.buy/66180? s=BAhJIhMxNzZM2ODUsUHJvamVjdAY6BkVG%0A)	
LiPo Battery	× 1	https://products.buy/66181? s=BAhJIhMxNzZM2ODUsUHJvamVjdAY6BkVG%0A)	
Protoboard	× 1	https://products.buy/66182? s=BAhJIhMxNzZM2ODUsUHJvamVjdAY6BkVG%0A)	

 ON Semiconductor			
TL431 Voltage Reference	× 1	s=BAhJIhMxNzZM2ODUsHJVamVjdAY6BkVG%0A)	
 Buzzer	× 1	s=BAhJIhMxNzZM2ODUsHJVamVjdAY6BkVG%0A)	▼
 SG90 Micro-servo motor	× 1	s=BAhJIhMxNzZM2ODUsHJVamVjdAY6BkVG%0A)	
MCB/Circuit Breaker	× 1	s=BAhJIhMxNzZM2ODUsHJVamVjdAY6BkVG%0A)	
Digilent 5V 2.5A Switching Power Supply (/digilent/products/5v-2-5a-switching-power-supply?ref=project-588163)	× 1	s=BAhJIhMxNzZM2ODUsHJVamVjdAY6BkVG%0A)	
 5 mm LED: Red	× 3	s=BAhJIhMxNzZM2ODUsHJVamVjdAY6BkVG%0A)	
 5 mm LED: Green	× 4	s=BAhJIhMxNzZM2ODUsHJVamVjdAY6BkVG%0A)	
 5 mm LED: Yellow	× 3	s=BAhJIhMxNzZM2ODUsHJVamVjdAY6BkVG%0A)	
 Resistor 220 ohm	× 5	s=BAhJIhMxNzZM2ODUsHJVamVjdAY6BkVG%0A)	
 Resistor 1k ohm	× 5	s=BAhJIhMxNzZM2ODUsHJVamVjdAY6BkVG%0A)	
 Resistor 2.2k ohm	× 5	s=BAhJIhMxNzZM2ODUsHJVamVjdAY6BkVG%0A)	
 Resistor 10k ohm	× 5	s=BAhJIhMxNzZM2ODUsHJVamVjdAY6BkVG%0A)	
 Male Header 40 Position 1 Row (0.1")	× 1	s=BAhJIhMxNzZM2ODUsHJVamVjdAY6BkVG%0A)	

Female Header 20 Position 2 Row (0.1")	× 1	\7 (/products/buy/565153 s=BAhJIhMxNzMTQ0USU4UWVjaAY6BkVG%0A)
Jumper wires (generic)	× 1	\7 (/products/buy/427423 s=BAhJIhMxNzMTQ0USU4UWVjaAY6BkVG%0A) ✓

Software apps and online services

AdaCore GNAT Community		
(/adacore/products/gnat-community?ref=project-588163)		\7 (/products/buy/319133 s=BAhJIhMxNzMTQ0USU4UWVjaAY6BkVG%0A)

Hand tools and fabrication machines

Soldering iron (generic)		
Hot glue gun (generic)		

Story

Introduction

Miniature Circuit Breaker (MCB) interrupts mains power when a **short circuit or over-current** occurs. The purpose is safety of electrical system from fire hazard.

A smart circuit breaker will not only function as a regular MCB but also **isolates incoming AC mains supply during disaster by sensing earthquake, fire/smoke, gas leakage or flood water**. By disconnecting incoming power lines to equipment and power outlets inside house/office/industry during any disaster, it can reduce the chance of electrical hazard and ensuring safety of peoples life and assets.

This system is programmed with Ada,where safety and security is critical.

Demonstration

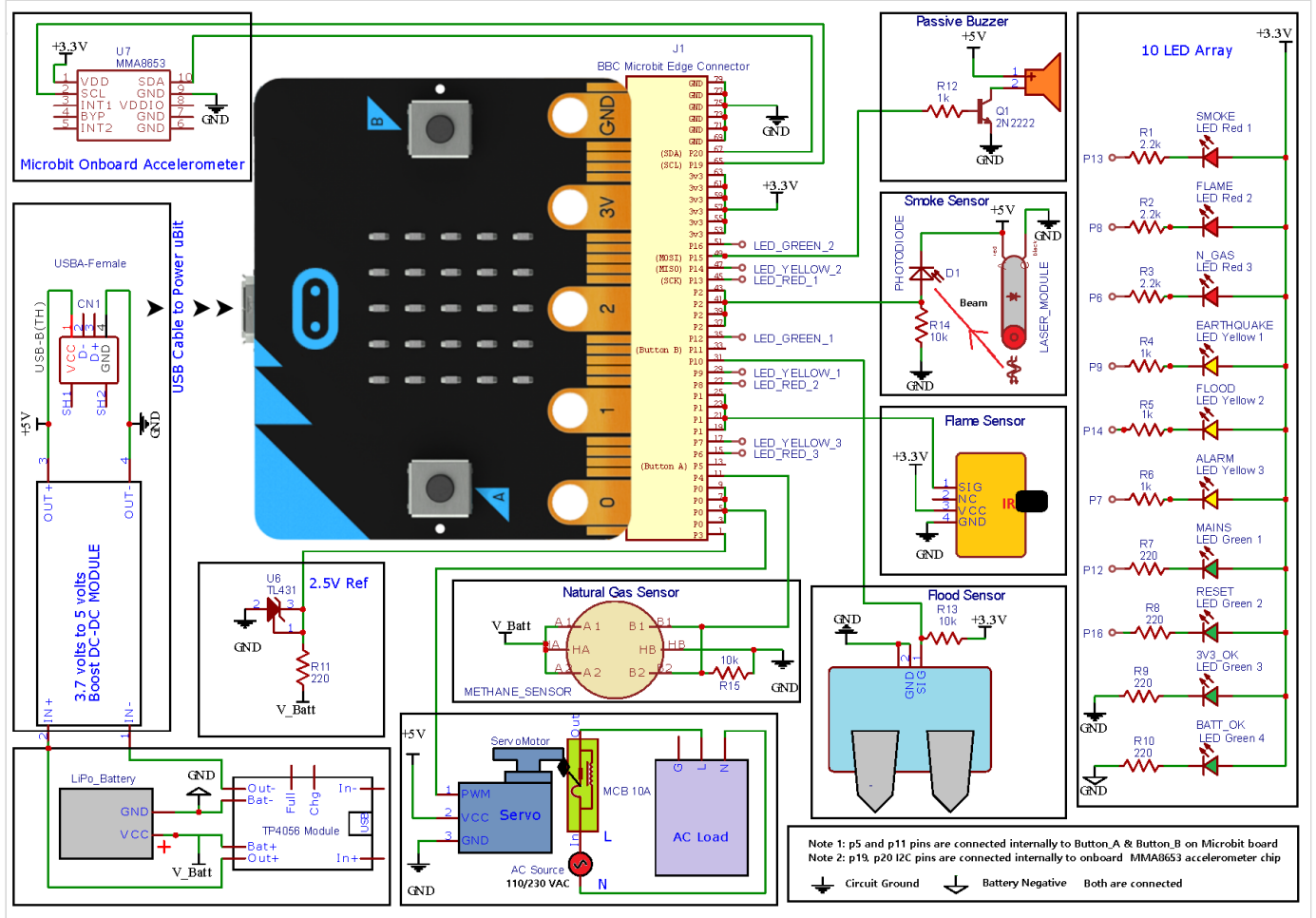
Smart Circuit Breaker

✓ Read more

Schematics

S
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(https://hacksterio.s3.amazonaws.com/uploads/attachments/1035370/adasch1_779x8rd3iU.pr)



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Flame

Smoke

N_Gas

Equake

Flood

Alarm

Mains

3v3 OK

Bat OK


First Press B
to Stop Alarm

Then Press A
to Resume


Finally Set CB to
On Position when
main LED is Green

Code

code ADA

microbit smart cb with Ada 



 (/code_files/281519/download)

```
----- edge connector pin mapping -----  
-- See here : https://makecode.microbit.org/device/pins -----  
pin/code)      pin (edge connector pads)      hardware connected
```

Credits



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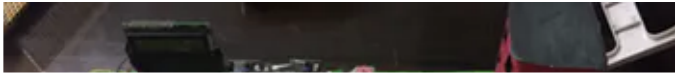
Thanks to **Fabien Chouteau**

(https://github.com/AdaCore/Ada_Drivers_Library/commits?author=Fabien-Chouteau).

Comments

There are no comments.

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Smart Circuit Breaker plus Alarm
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1.8K





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👍 5

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Smart Dustbin with ??

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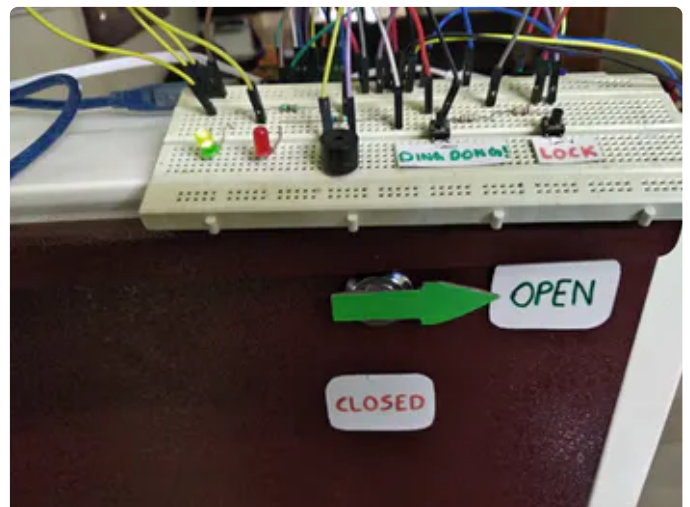
Smart Dustbin with Garbage Level

Monitoring (/msr048/smart-dustbin-with-garbage-level-monitoring-8dd13b)

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👍 1

👁 712



(/divinsmathew/smart-door-with-face-unlock-273e06)

Smart Door with Face Unlock

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