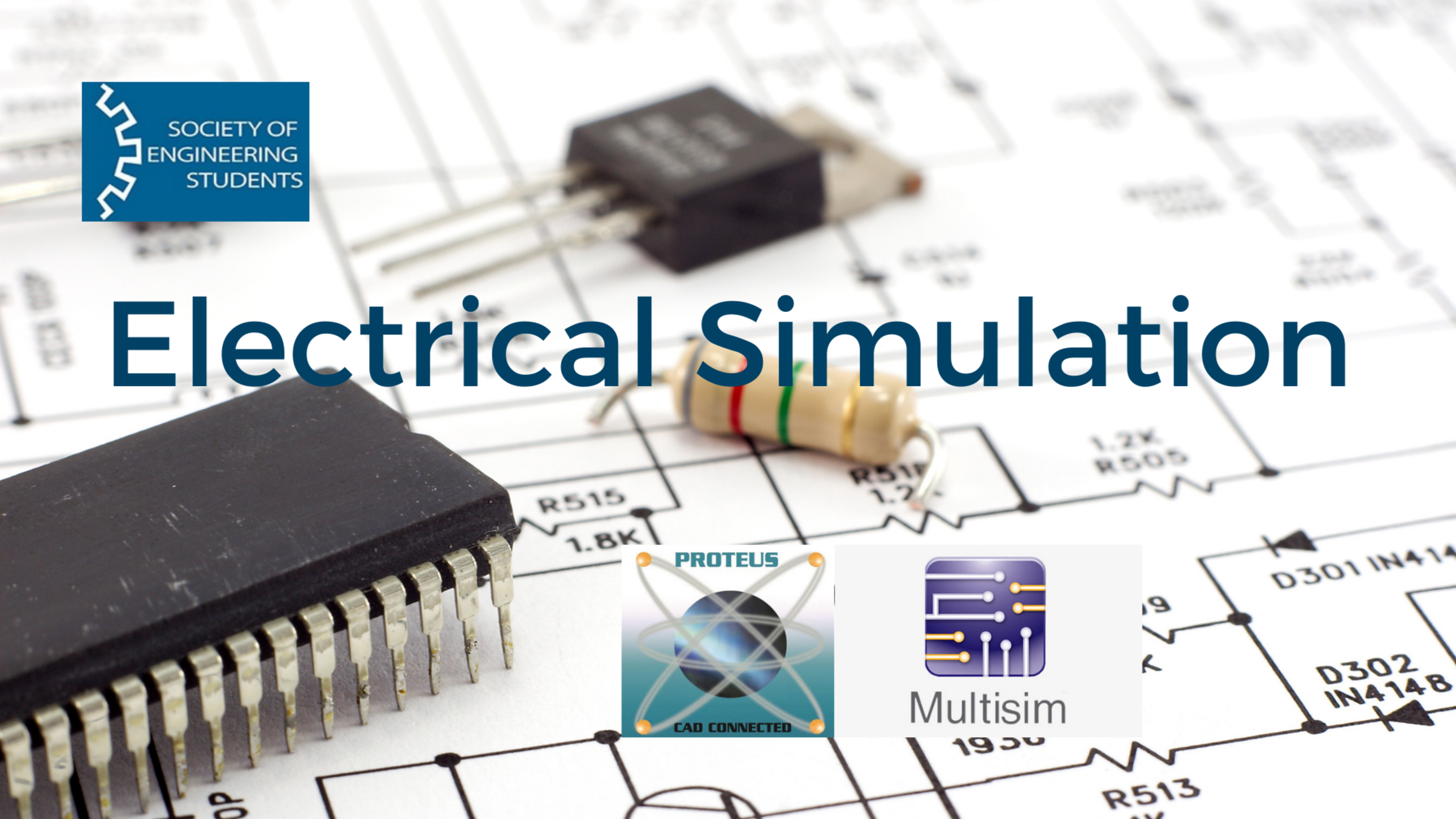
SOCIETY OF ENGINEERING STUDENTS

Electrical Simulation



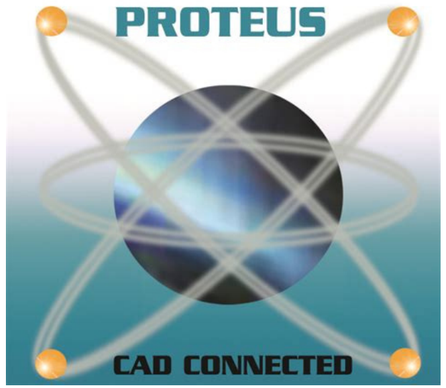
tinegachris tinegachris tinega_chris

SOCIETY OF ENGINEERING STUDENTS

Electrical Simulation

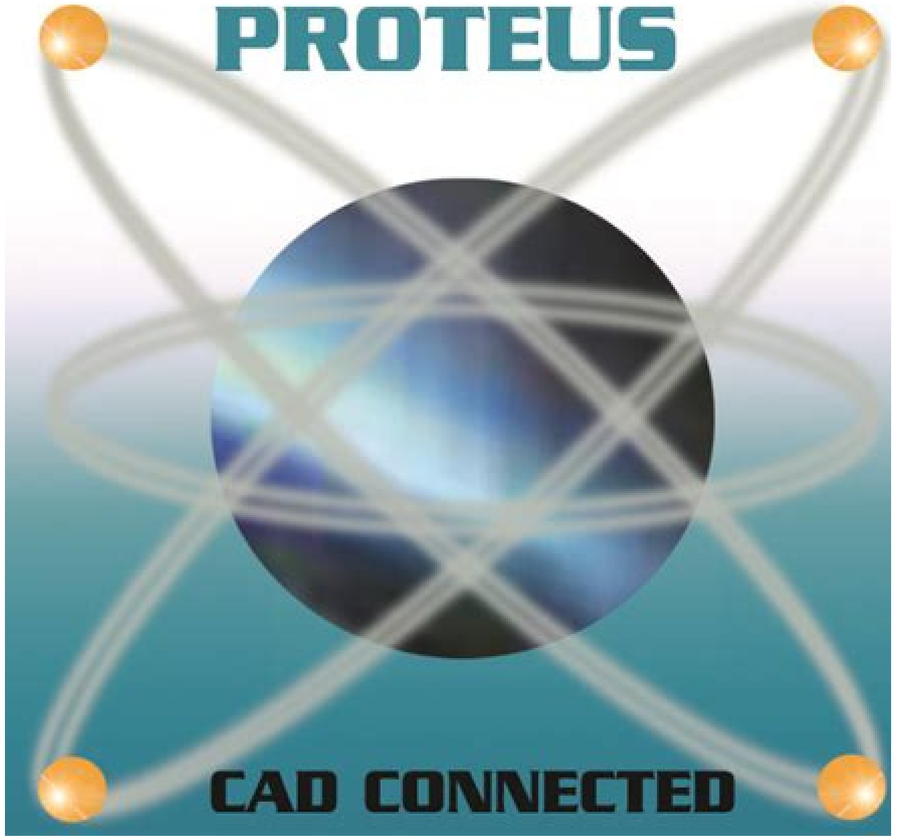
Scope

- **Proteus**
- **NI Multisim**
- **Microcontrollers**

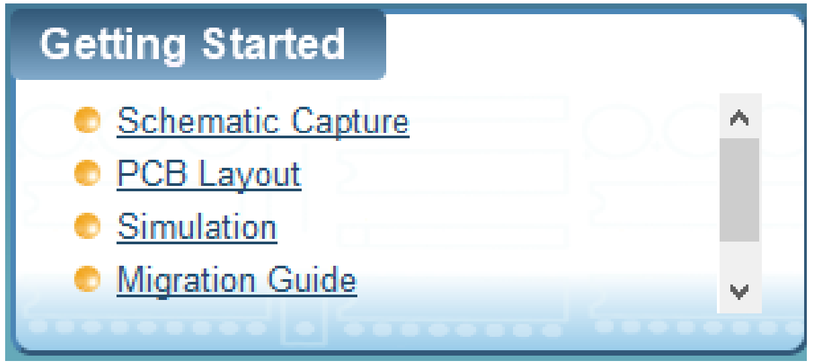


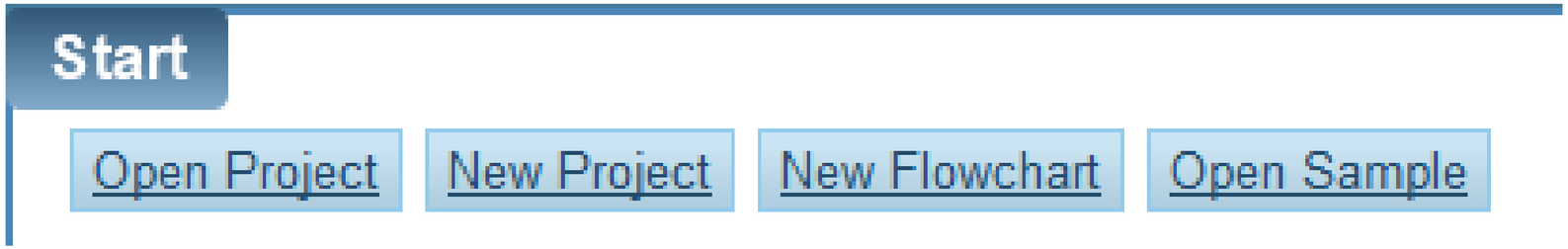
Proteus Design Suite

- Schematic Capture
- PCB Design
- 3D Verification
- Microcontroller Simulation

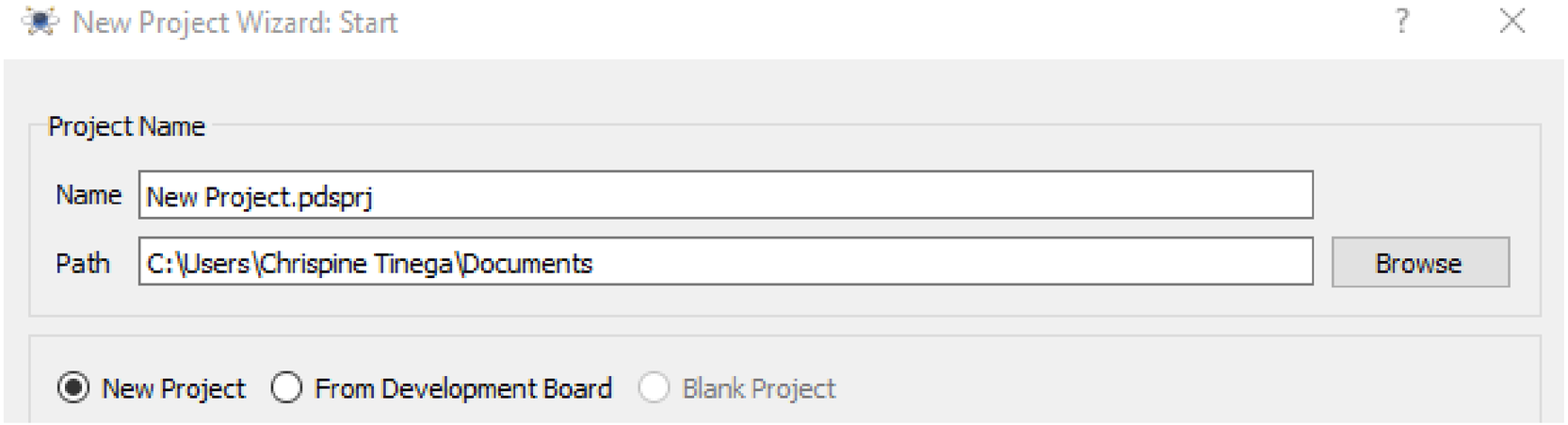


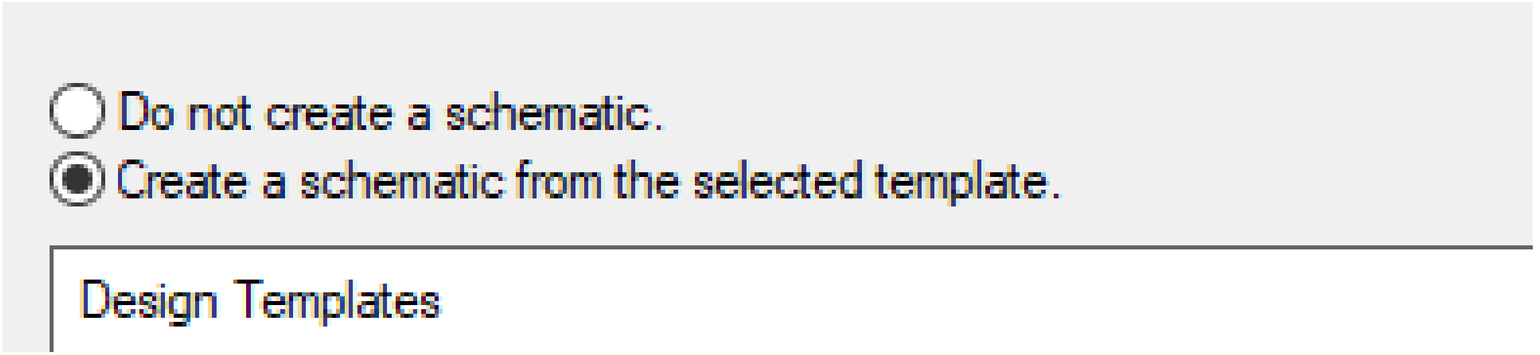
Schematic Capture





Schematic Capture





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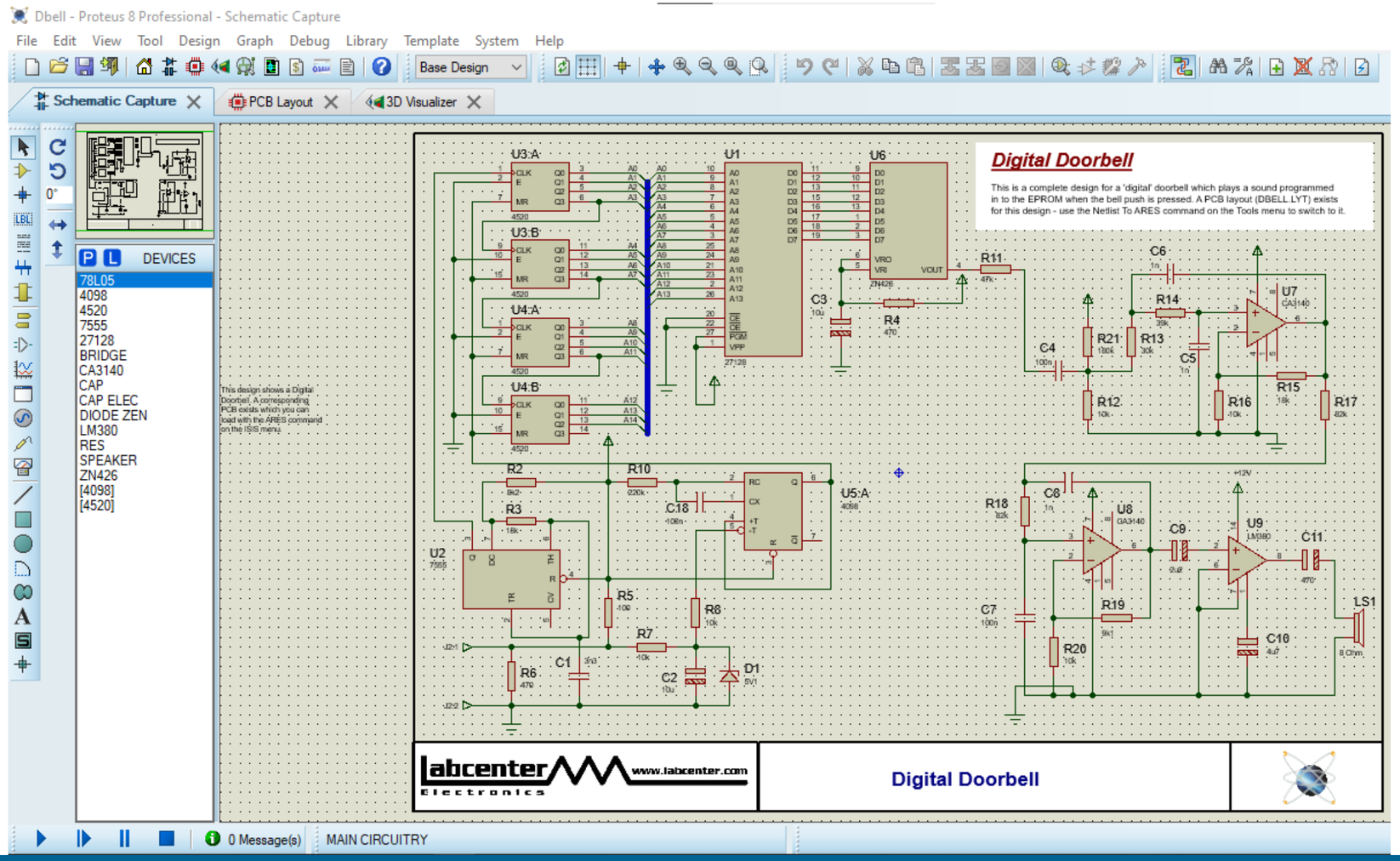

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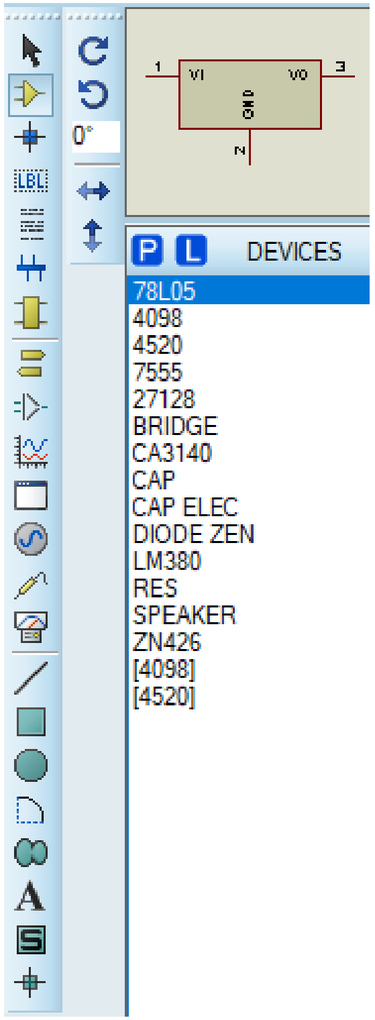
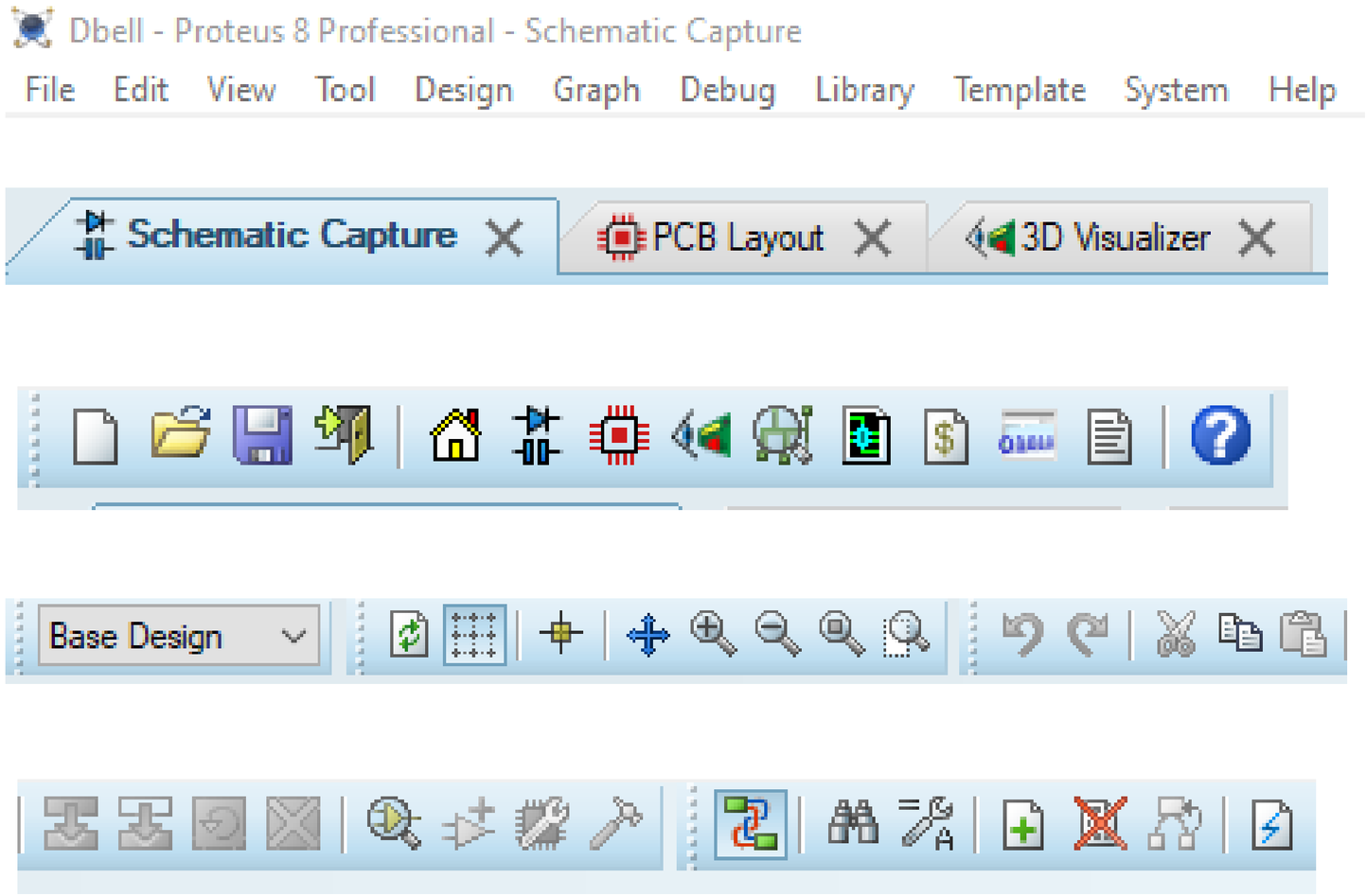
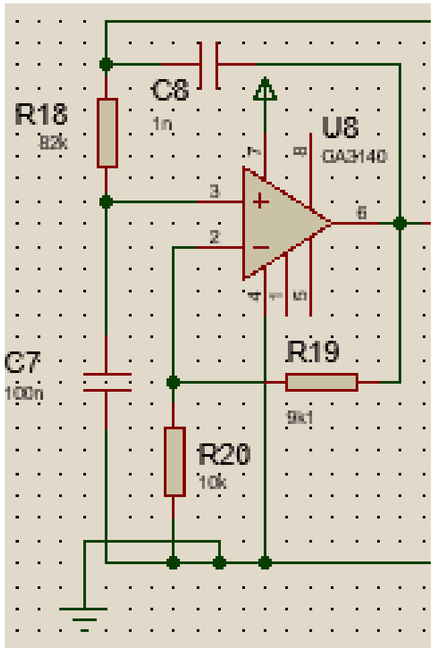






PCB Design

New Project Wizard: PCB Layout

- ○ Do not create a PCB layout.
- ◉ Create a PCB layout from the selected template.

Layout Templates

Arduino MEGA 2560 rev3

Arduino UNO rev3

DEFAULT

New Project Wizard: PCB Layer Stackup ?

ID	Name	Type	Material	Thickness	Dielectric	Power Plane
TR	Top Resist	Surface	Resist	10um	3.50	
TOP	Top Copper	Signal	Copper	18um		
		Core	FR4	1.55mm	4.80	
BOT	Bottom Copper	Signal	Copper	18um		
BR	Bottom Resist	Surface	Resist	10um	3.50	

PCB Design

New Project Wizard: PCB Drill Pairs

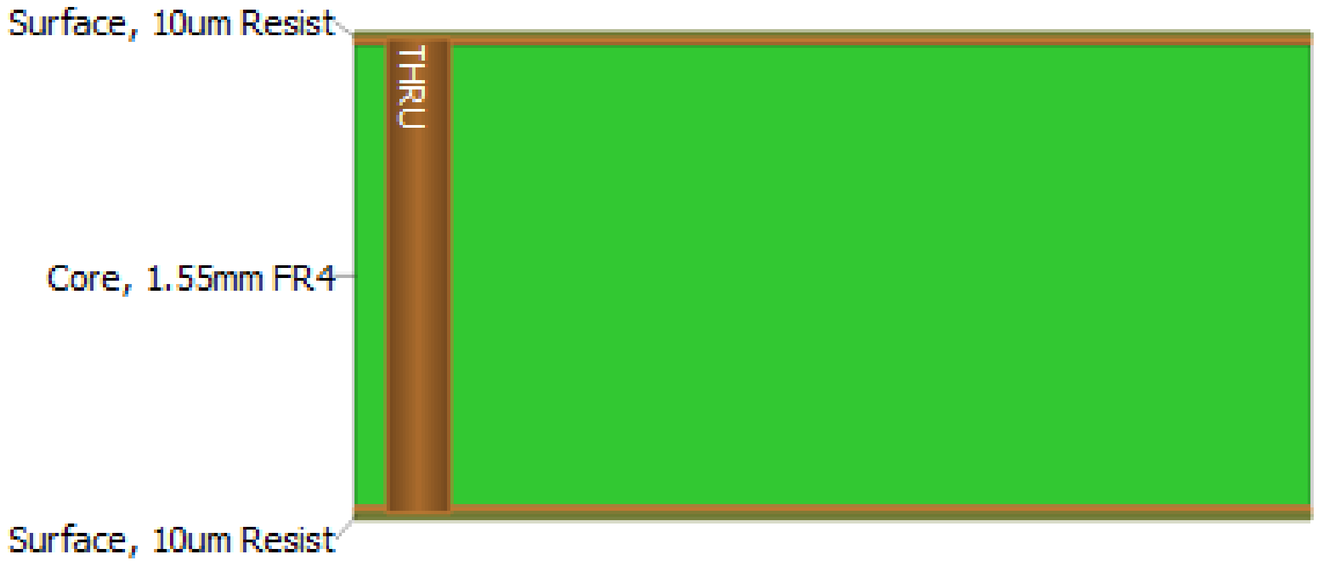
#	Name	Start Layer	Stop Layer
1	THRU	Top Copper	Bottom Copper

Add Drill Span

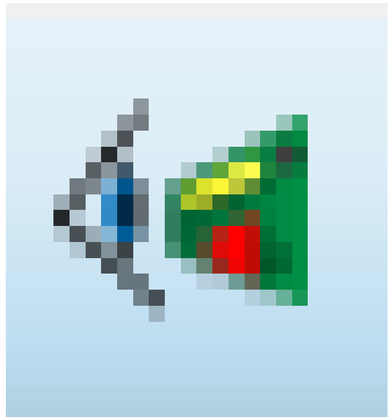
From: Top Copper

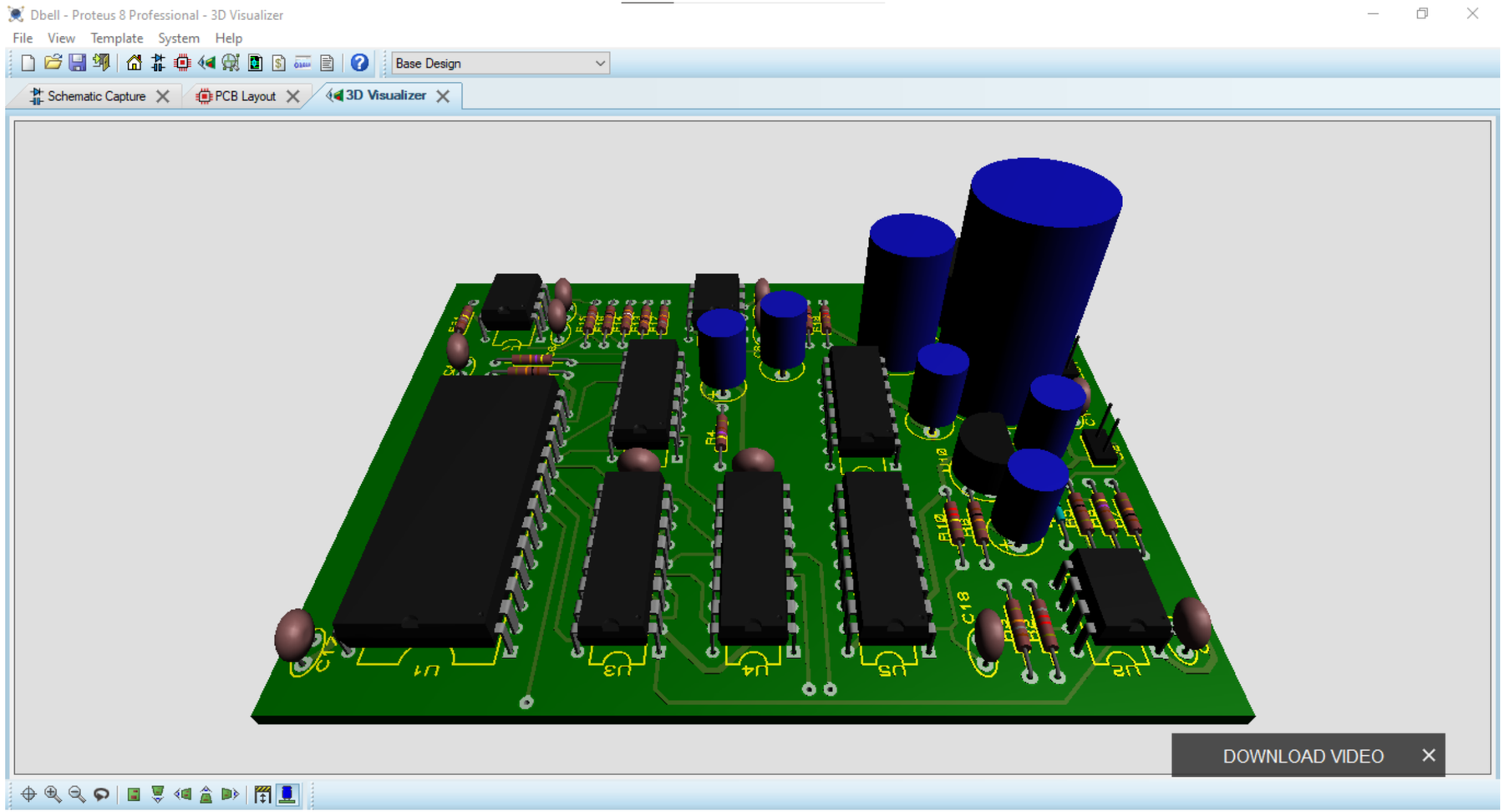
To: Top Copper

OK Cancel

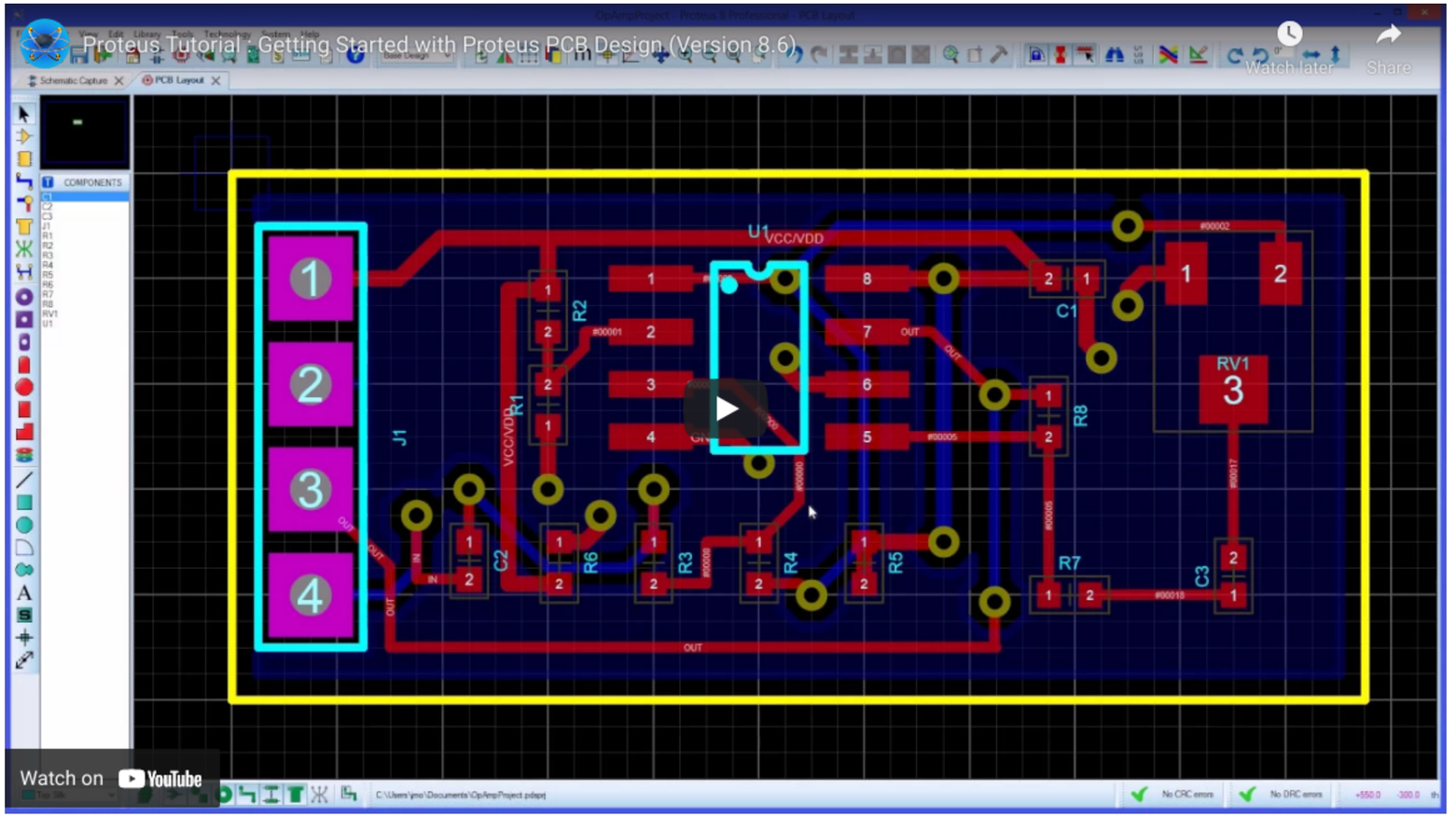


3D Verification





PCB Design

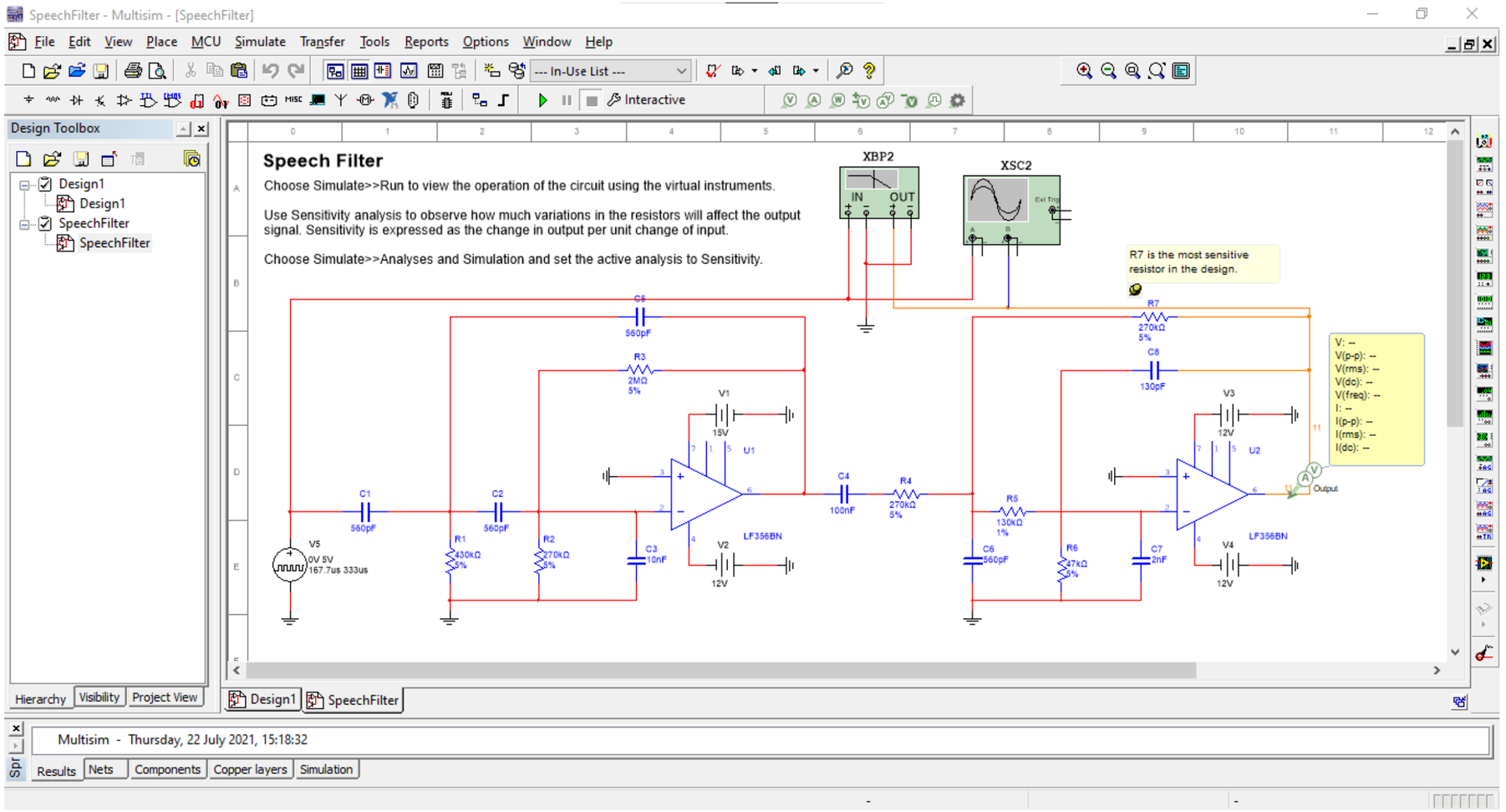


https://youtu.be/GYAHwYUUs34

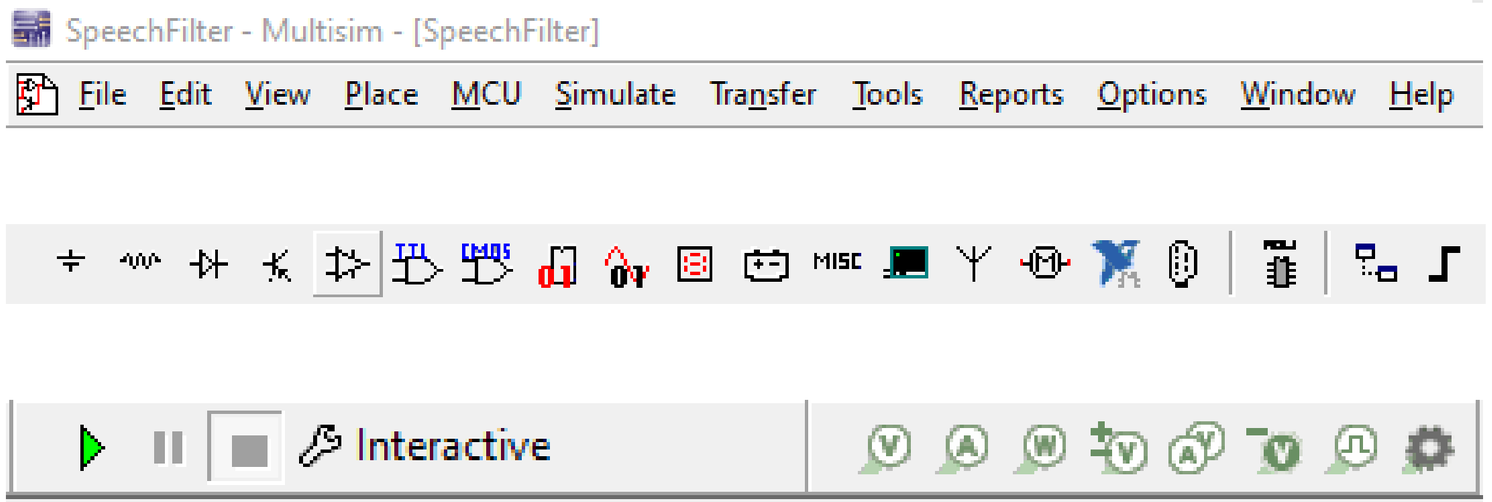
NI MULTISIM

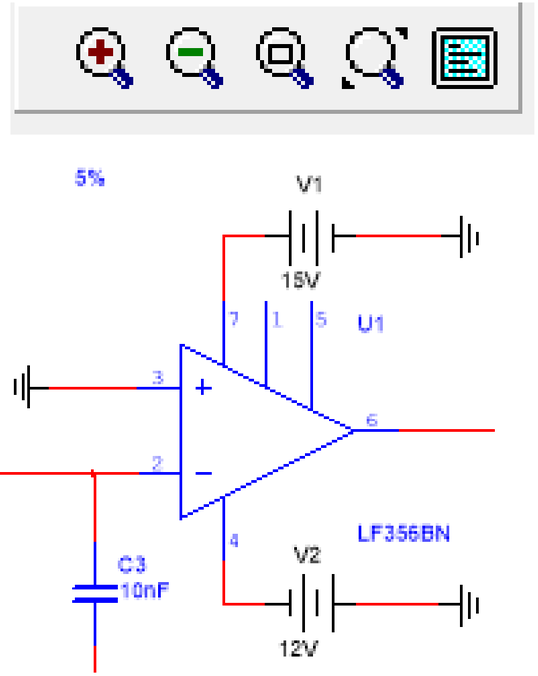
- **SPICE Simulation**
- **Ultiboard™**

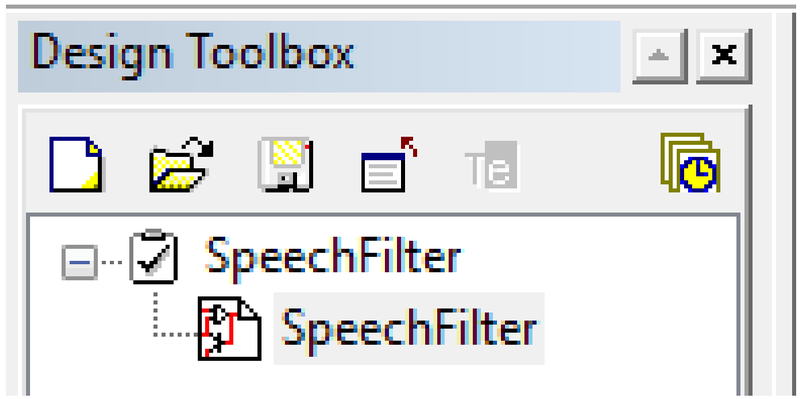
SPICE Simulation

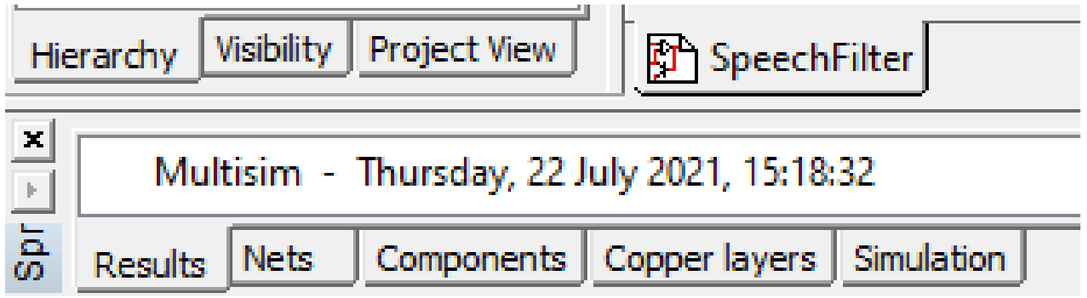


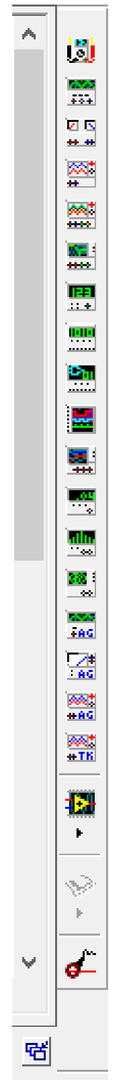
SPICE Simulation



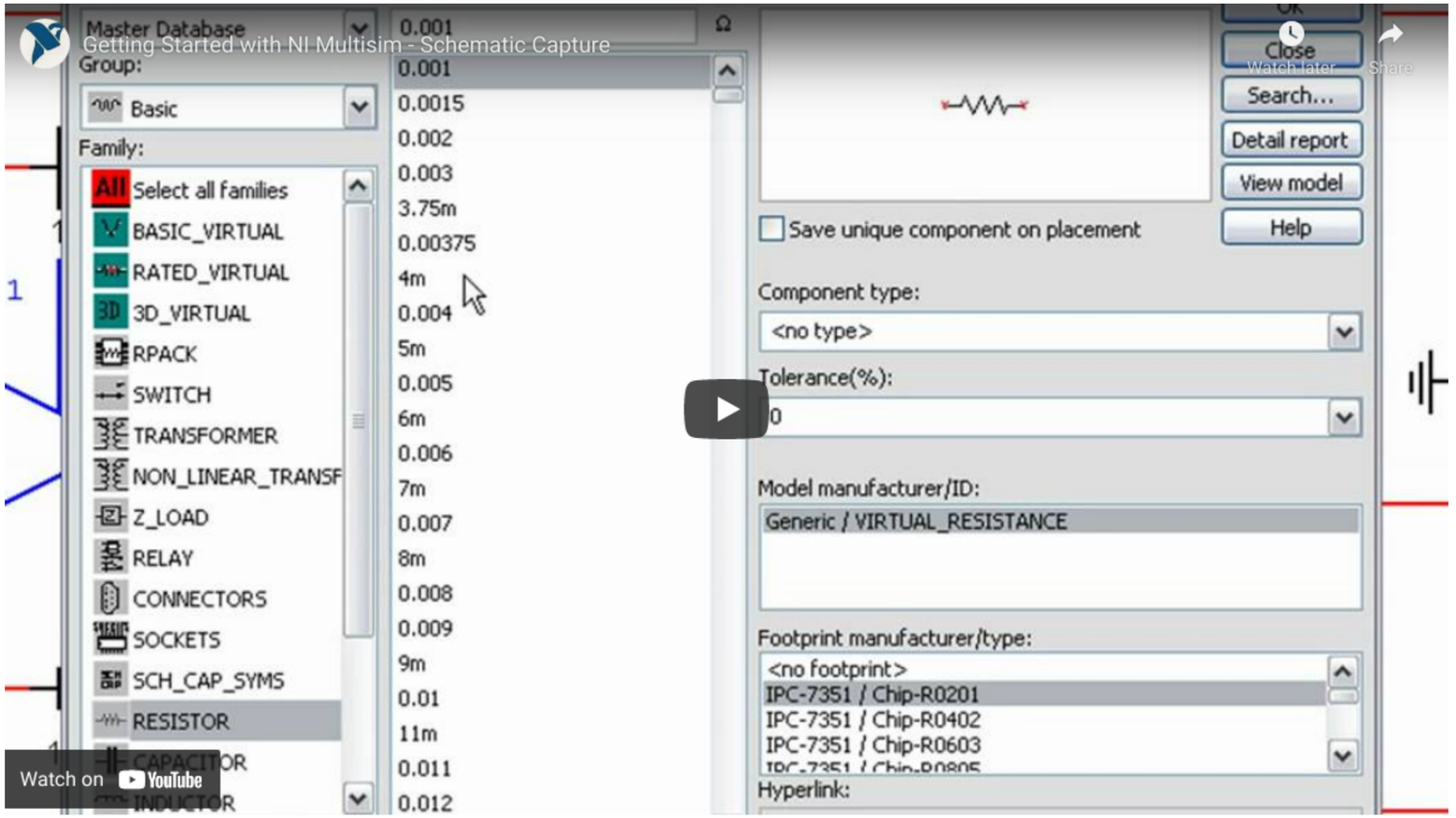








SPICE Simulation



https://youtu.be/26gTGMKDN6c

Ultiboard™

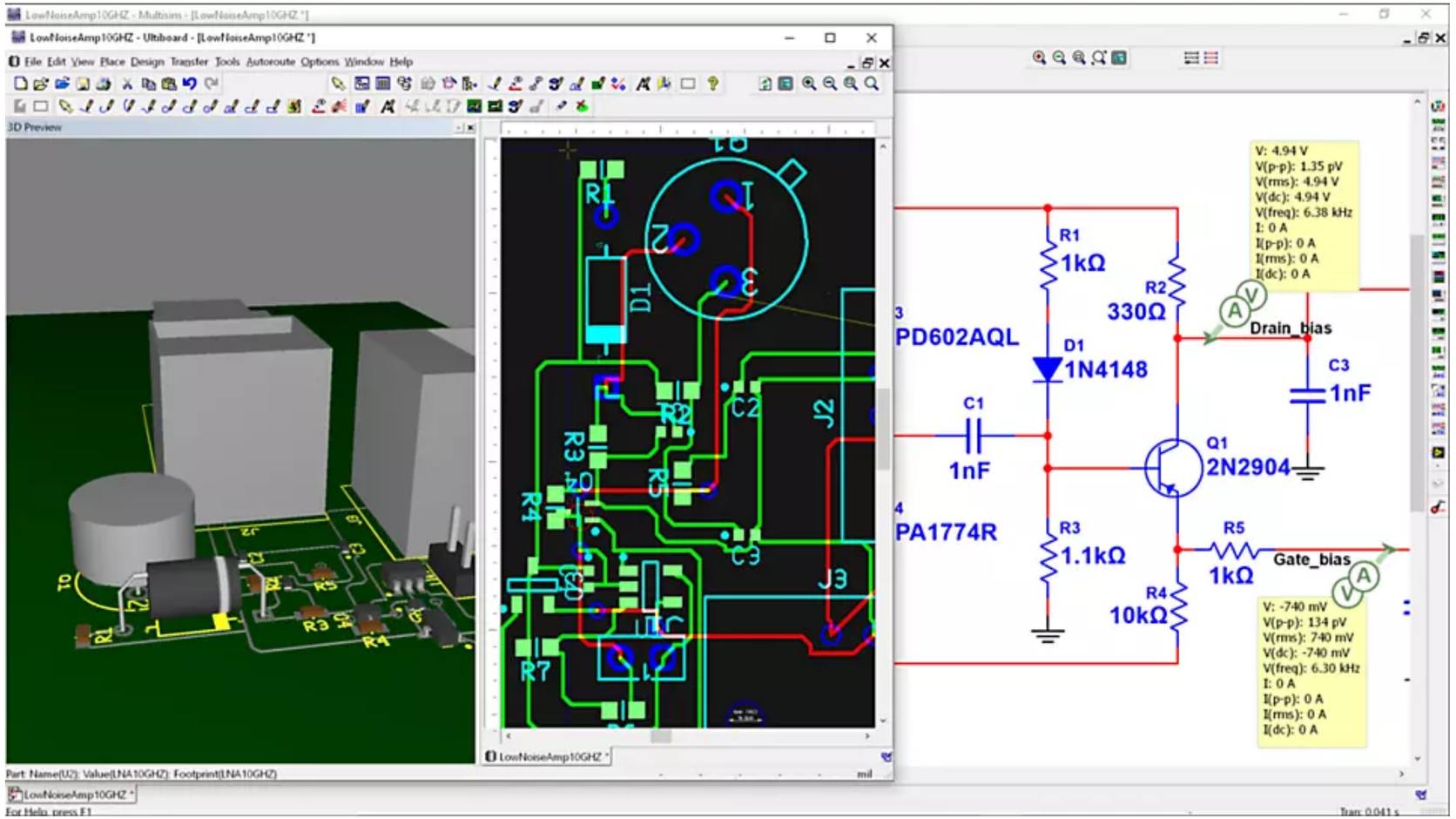
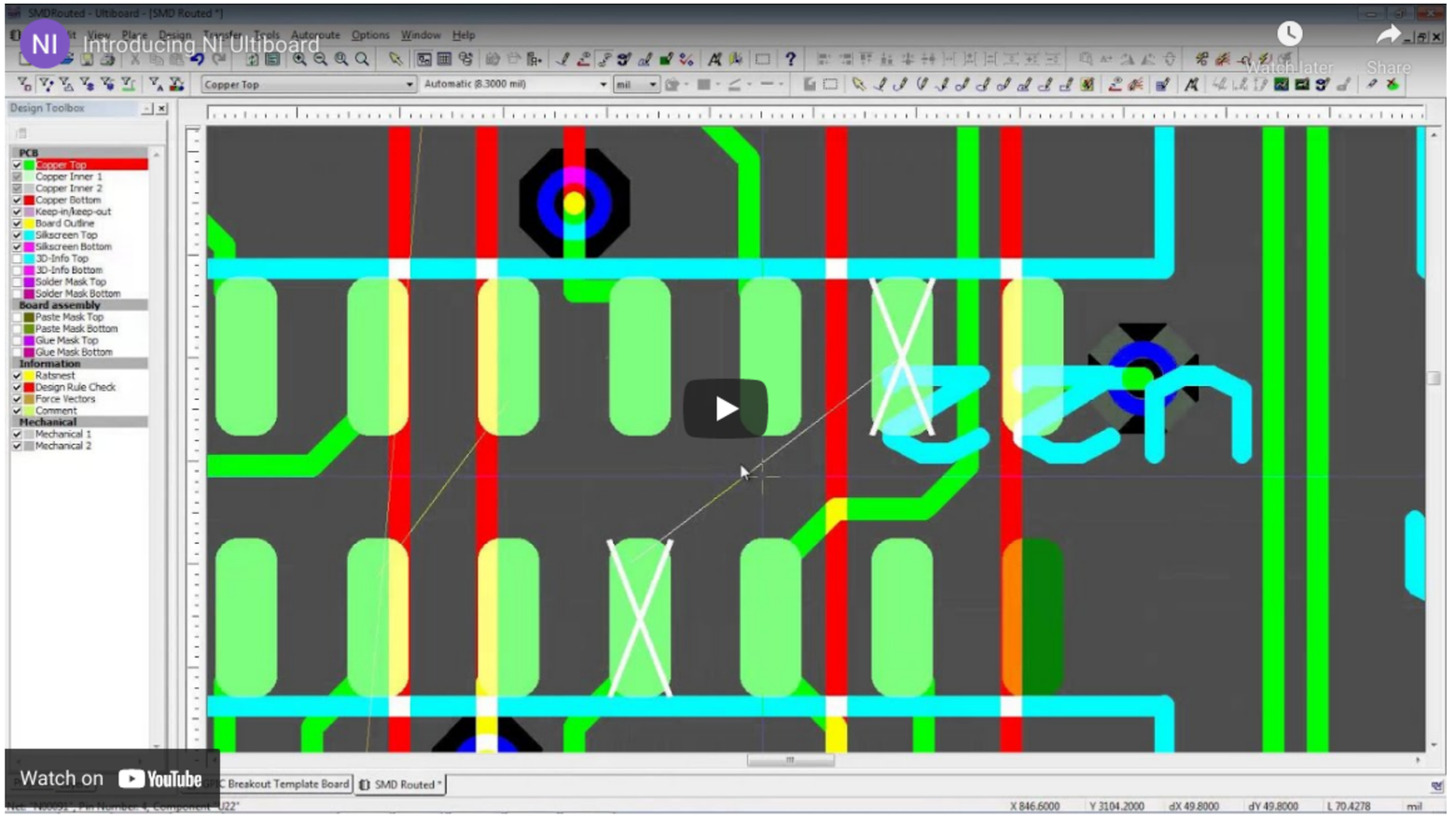


Image source: ni.com

Ultiboard™



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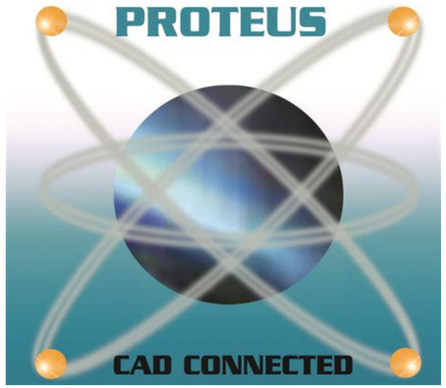
MICROCONTROLLERS

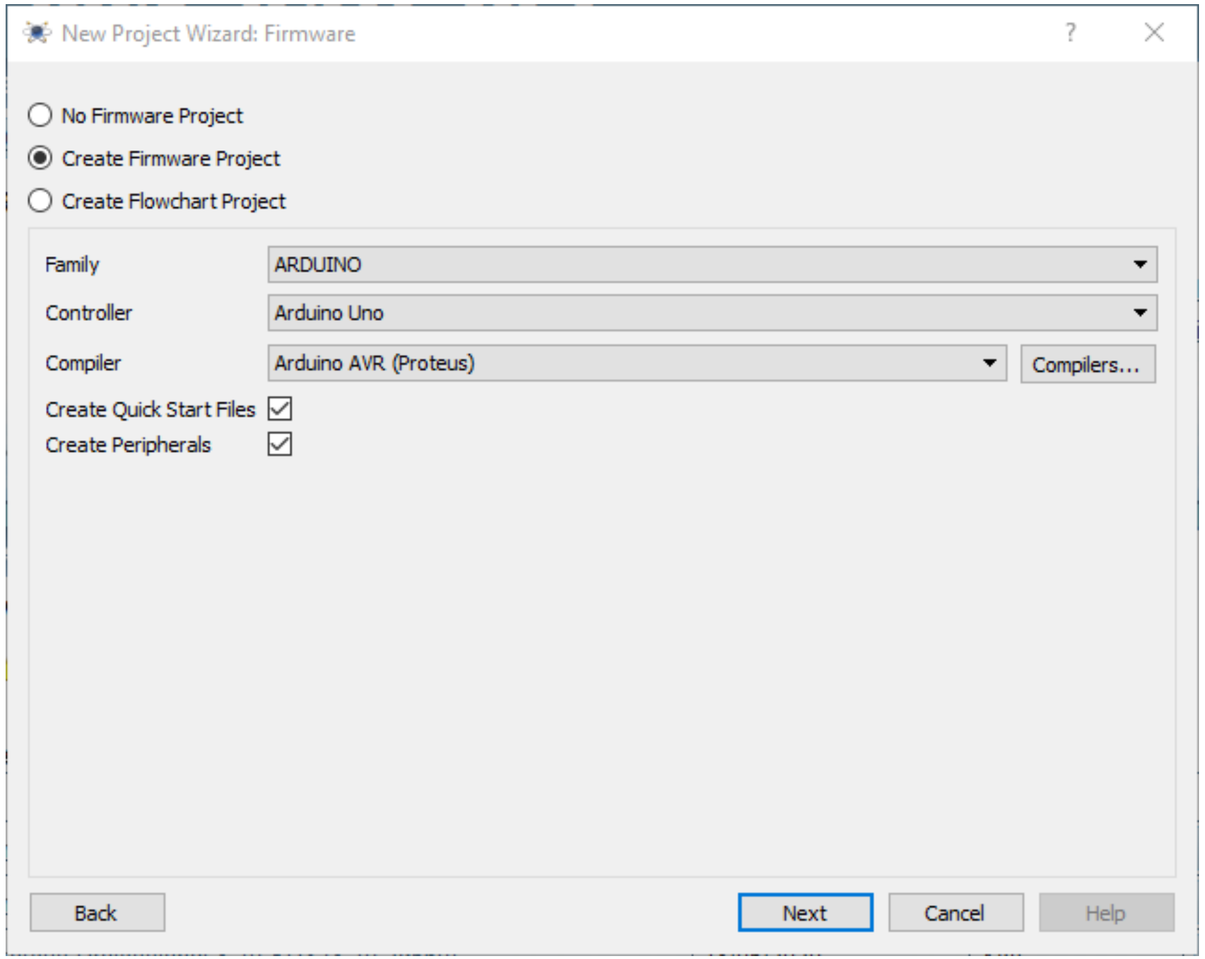
- **Working with**

  Microcontrollers

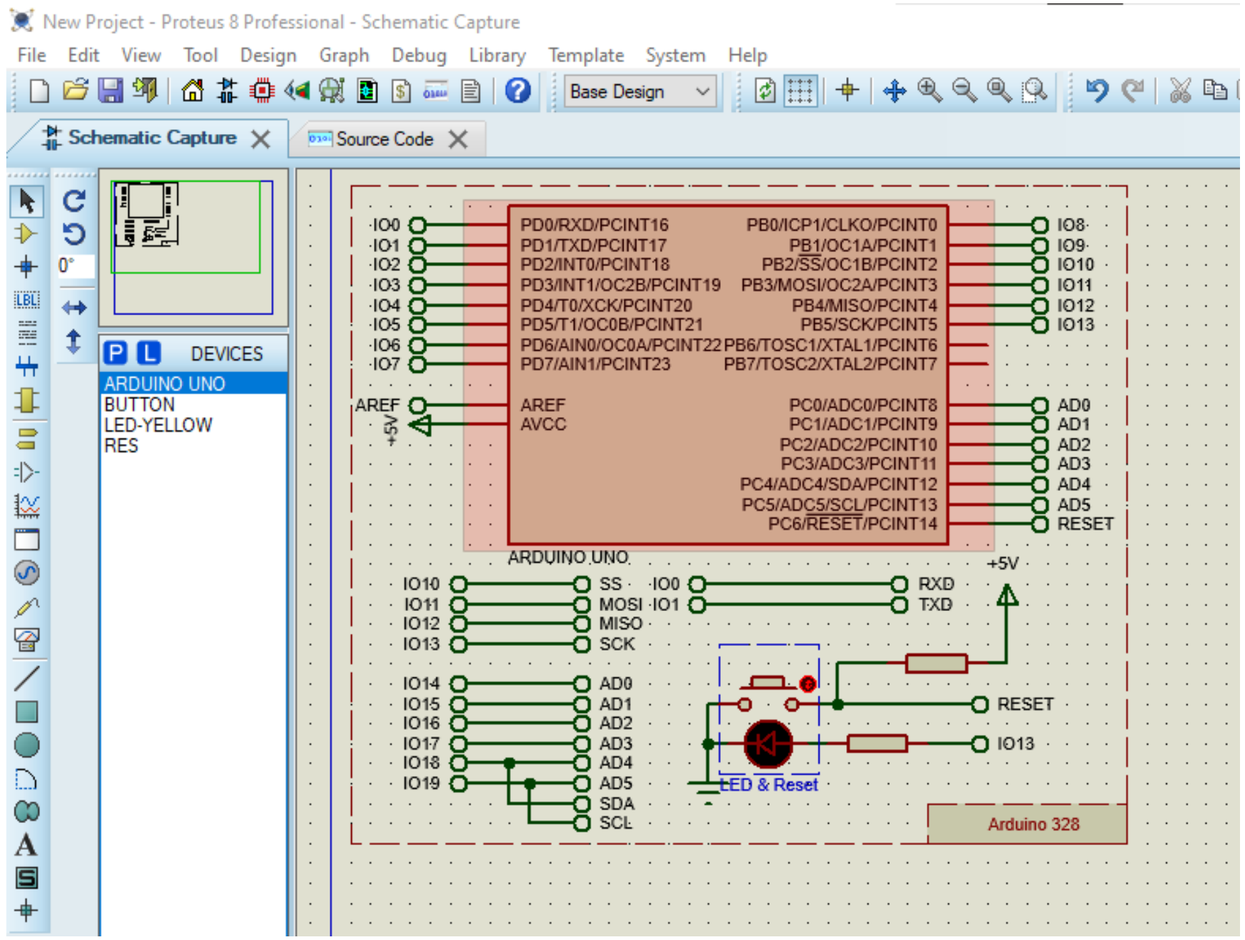


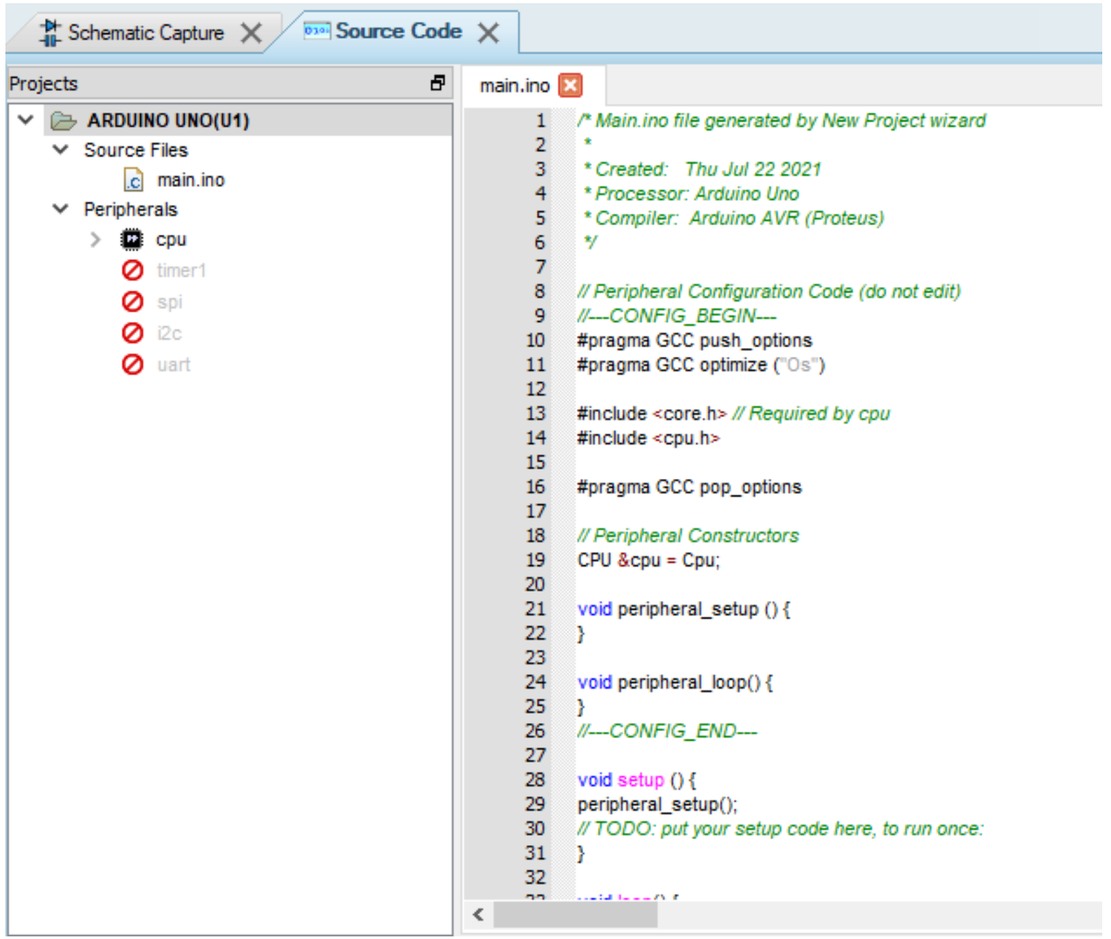
ARDUINO

Microcontrollers in Proteus

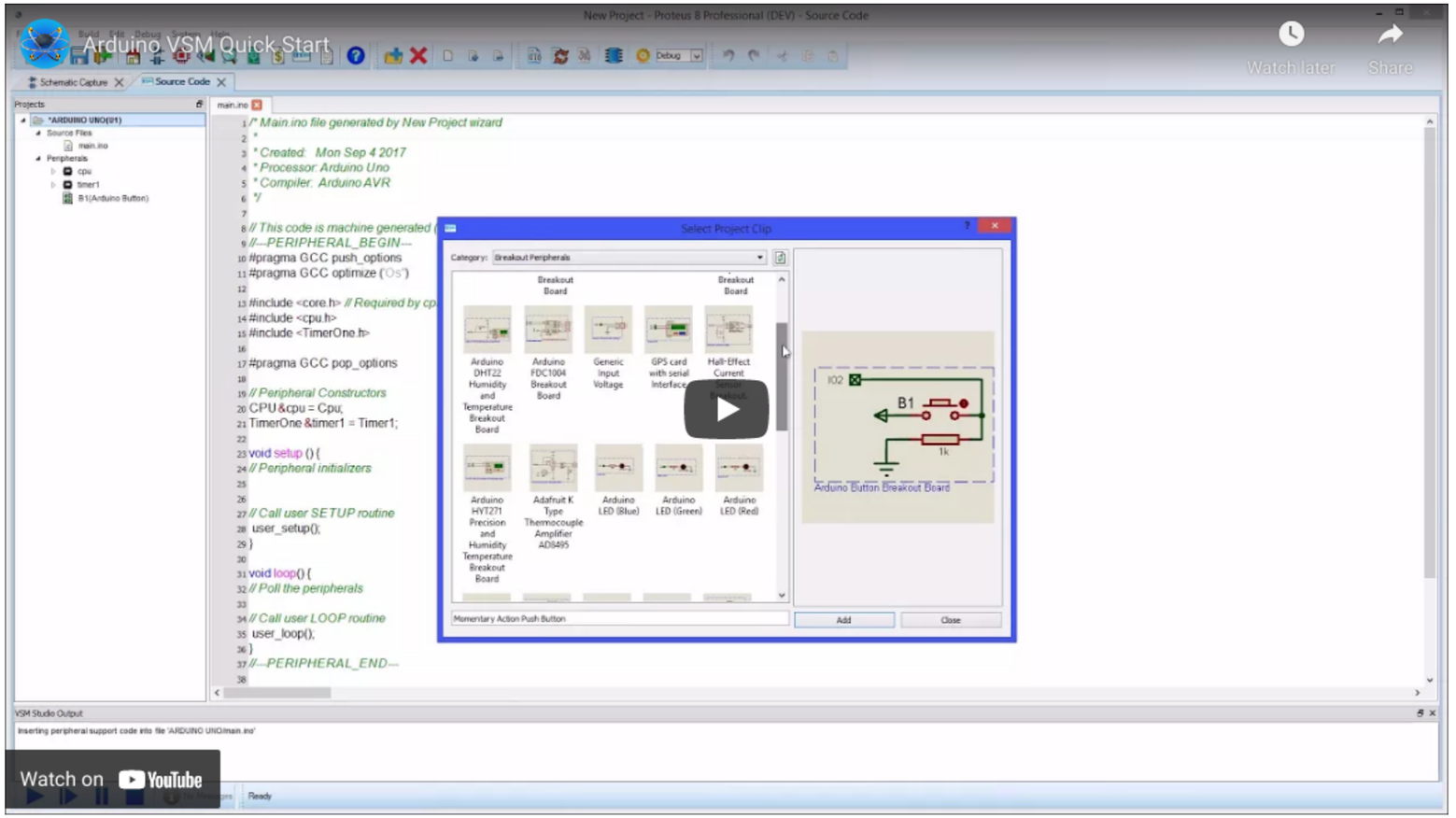


Microcontrollers in Proteus



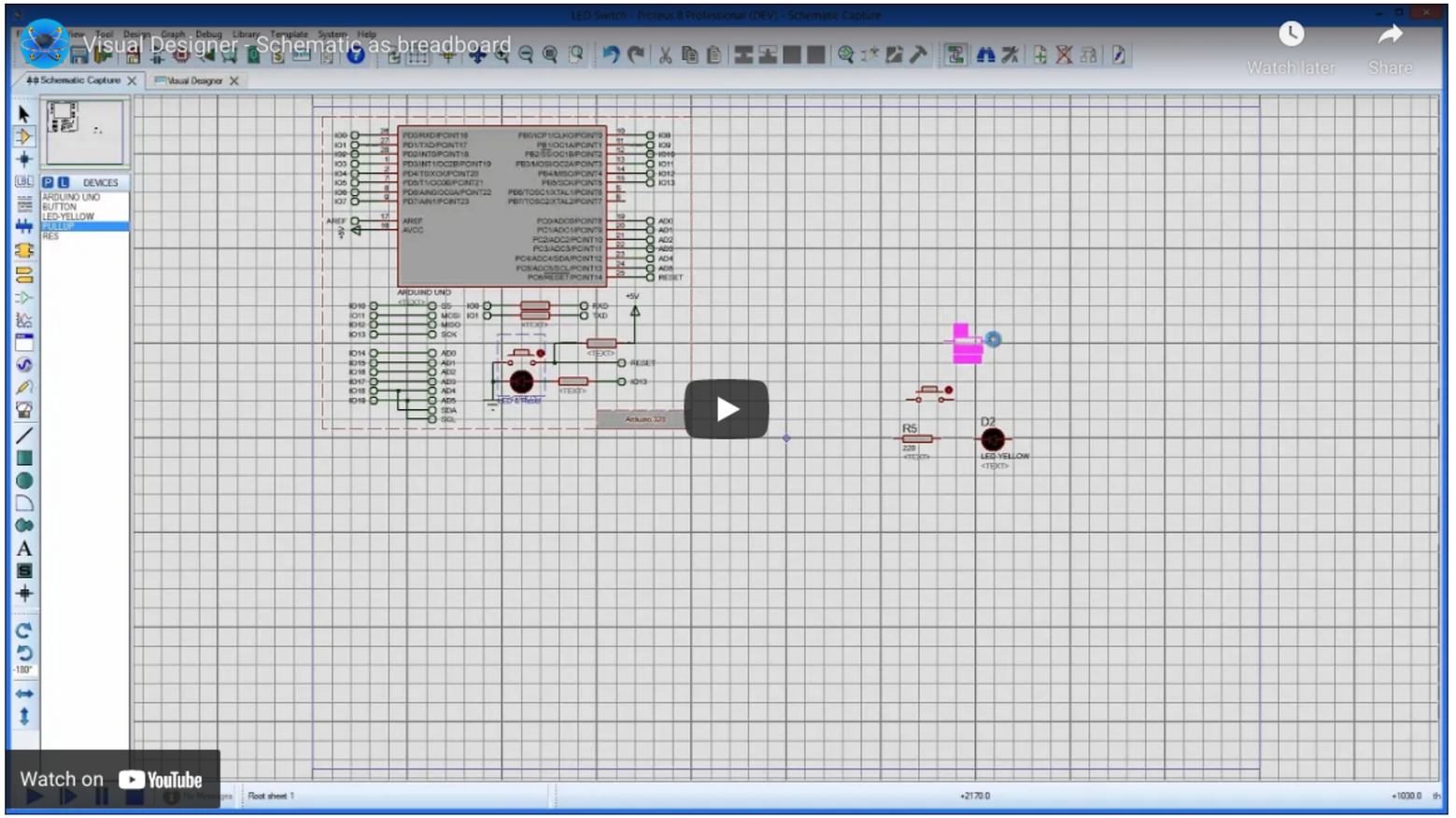


Microcontroller Simulation



https://youtu.be/1rTGiPXj73A

Bonus: Visual Designer



https://youtu.be/ZaxOOEdoruM

Resources

1. PCB Design YouTube Playlist
2. Proteus IoT Builder Help
3. Proteus Tutorials
4. Proteus Professional 8.9 Windows Setup
5. NI Circuit Design Suite 14.2 Windows Setup
6. Getting Started with NI Circuit Design Suite tutorial document


Thank you!