

MAJOR PROJECT : ICT-452

NEURONOVA

Transforming Mental Impulses Into Intelligent Actions

WHAT IF YOUR MIND COULD CONTROL YOUR WORLD?



- AUTOMATING GADGETS WITH MOST EASE AND SAFETY MEASURES.

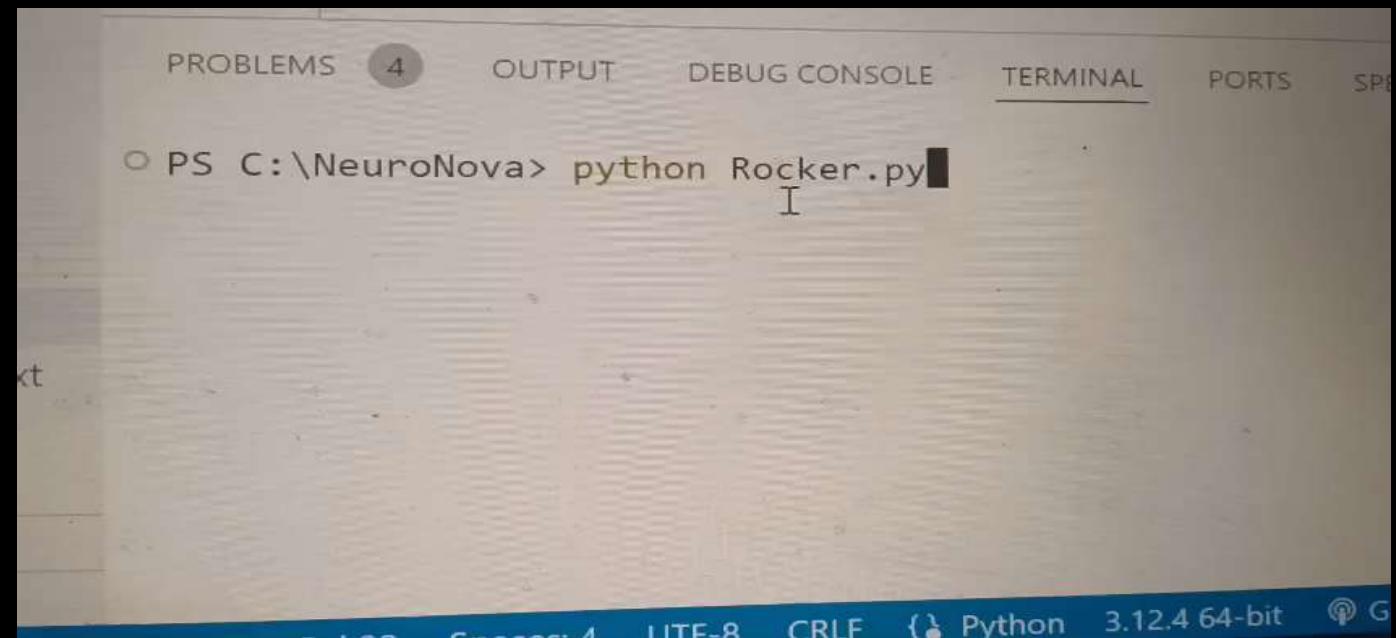
SMART HOME AUTOMATION

CURRENT VS INNOVATION EXAMPLE

Current

- Dark-> Go and Turn on light manually.

Innovation



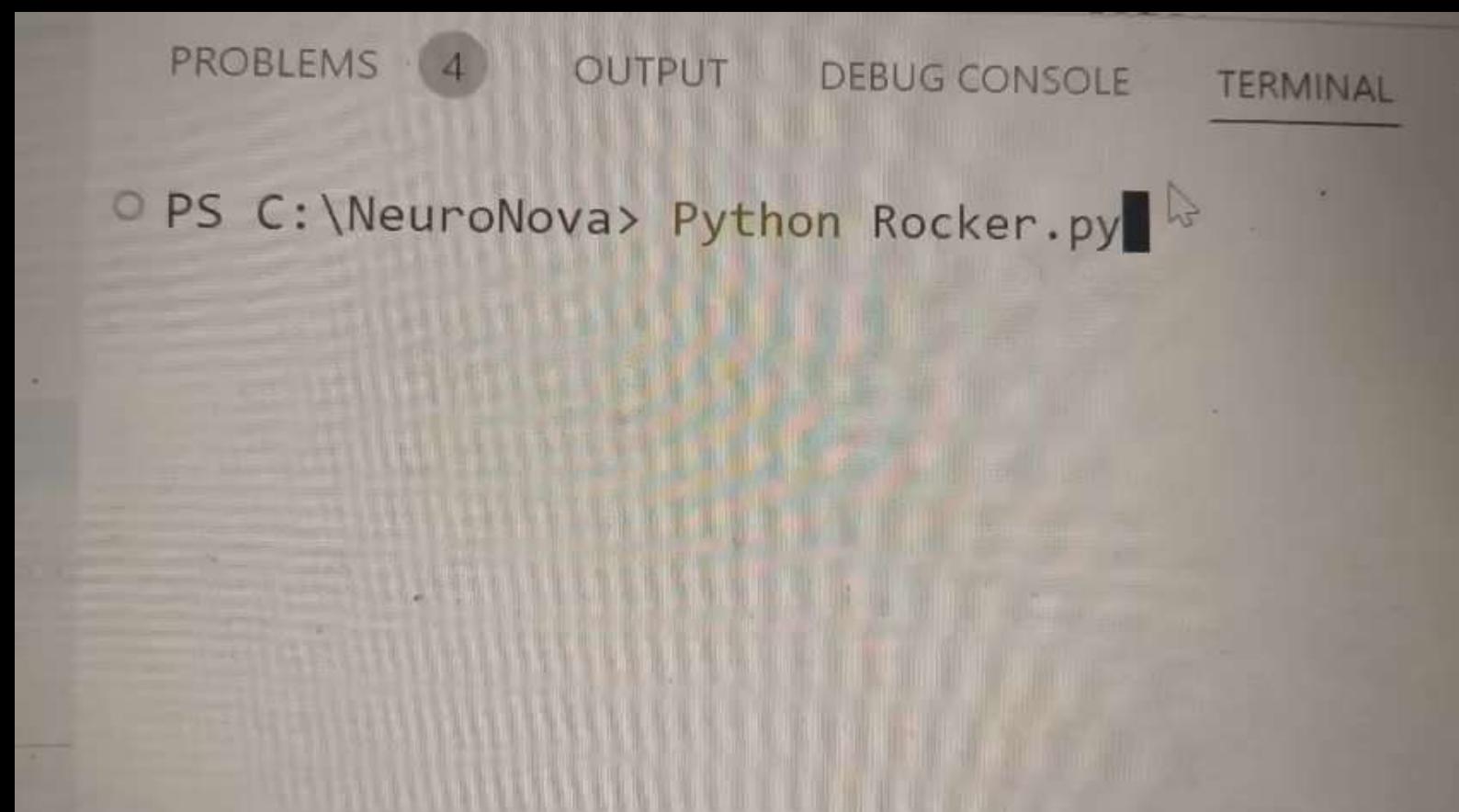
A screenshot of a terminal window from a code editor. The window has tabs at the top: PROBLEMS (4), OUTPUT, DEBUG CONSOLE, TERMINAL (underlined), PORTS, and SPE. In the terminal pane, there is a single line of text: "PS C:\NeuroNova> python Rocker.py". The cursor is positioned at the end of the command. At the bottom of the window, there is a status bar with the text: "File Encoding: UTF-8 CR/LF Python 3.12.4 64-bit".

CURRENT VS INNOVATION EXAMPLE

Current

- Feeling bored ->
Turn Exciting on Music ->
Time Taking.....

Innovation



A screenshot of a terminal window from a code editor. The window has tabs at the top: PROBLEMS (4), OUTPUT, DEBUG CONSOLE, and TERMINAL. The TERMINAL tab is underlined. In the terminal, the command "PS C:\NeuroNova> Python Rocker.py" is being typed, with the cursor at the end of "Rocker.py". The background of the slide features a colorful, abstract design with yellow, orange, green, and blue streaks.

TRACING THE EVOLUTION OF BRAIN-COMPUTER INTERFACES (BCI)

⌚ Timeline :

2002 – Teplan, M. “Fundamentals of EEG Measurement”

- Established the foundation for accurate EEG signal acquisition techniques.

2009 – Mak & Wolpaw “Clinical Applications of BCIs”

- Explored BCI's potential in medical rehabilitation; emphasized practical limitations.

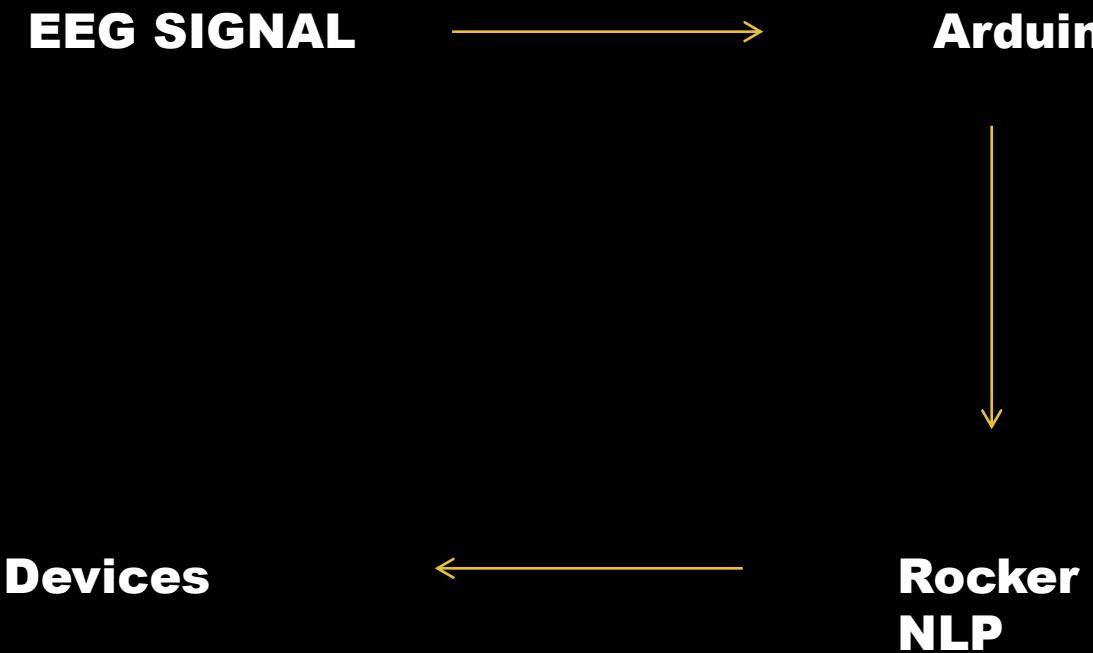
2014 – OpenBCI Platform Launch: “Democratizing EEG”

- 💡 Opened the door to low-cost BCI experimentation using open hardware

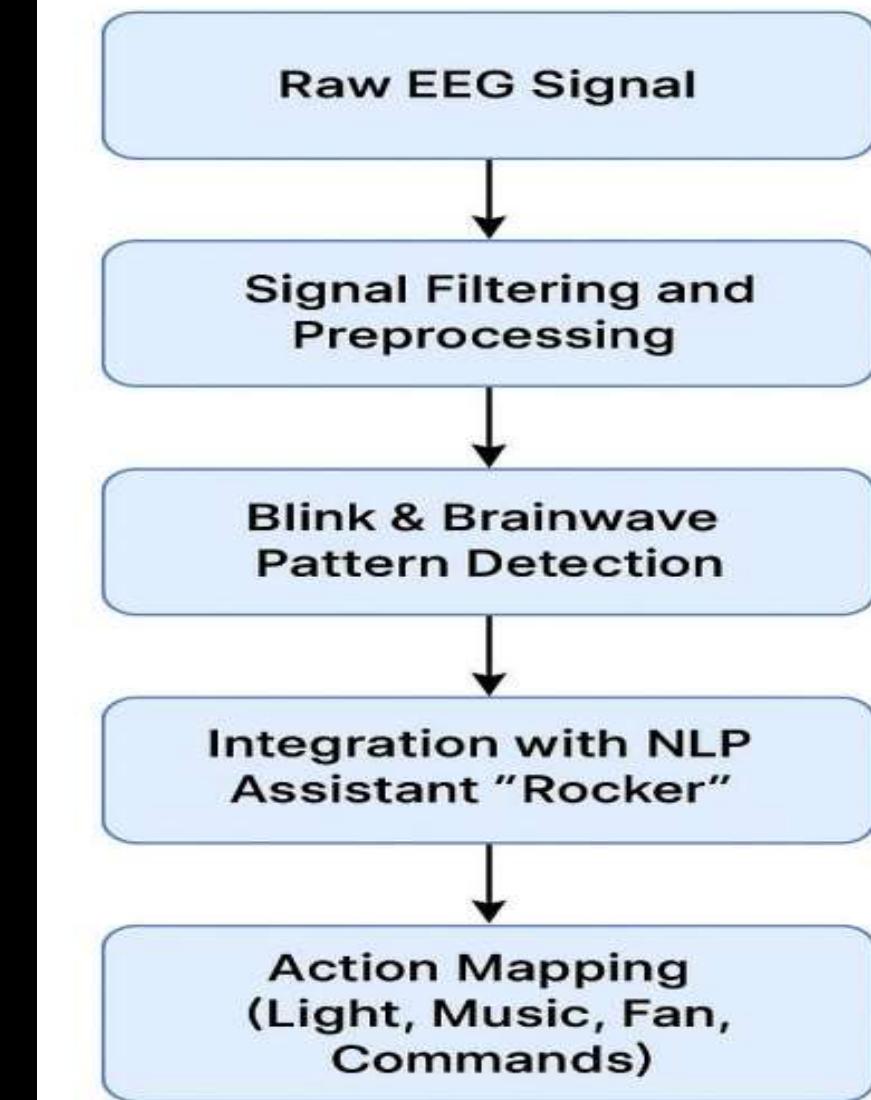
• 2019 – NeuroTechX EEG Notebooks “Real-time EEG Analysis in Python”

- ⌚ Simplified signal preprocessing and made BCI integration developer-friendly.

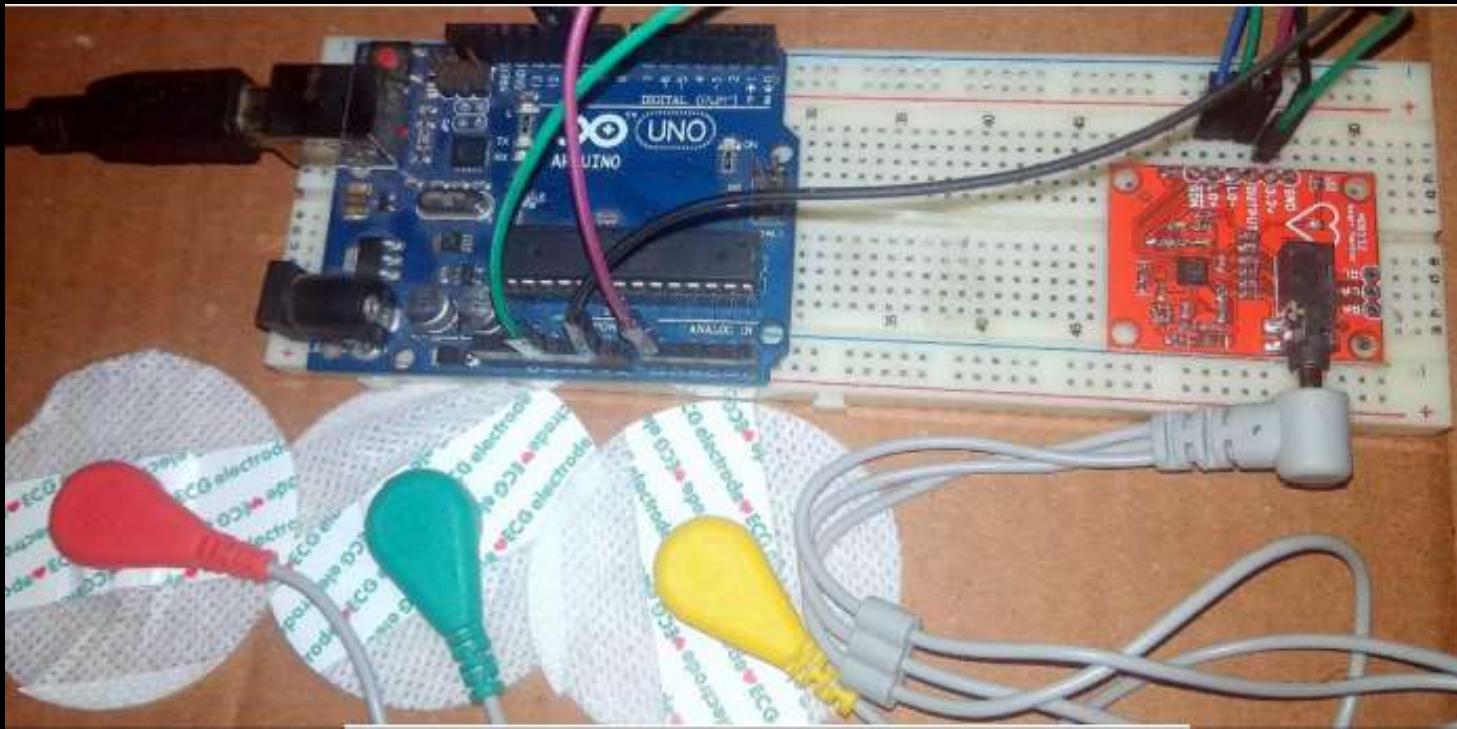
SYSTEM OVERVIEW



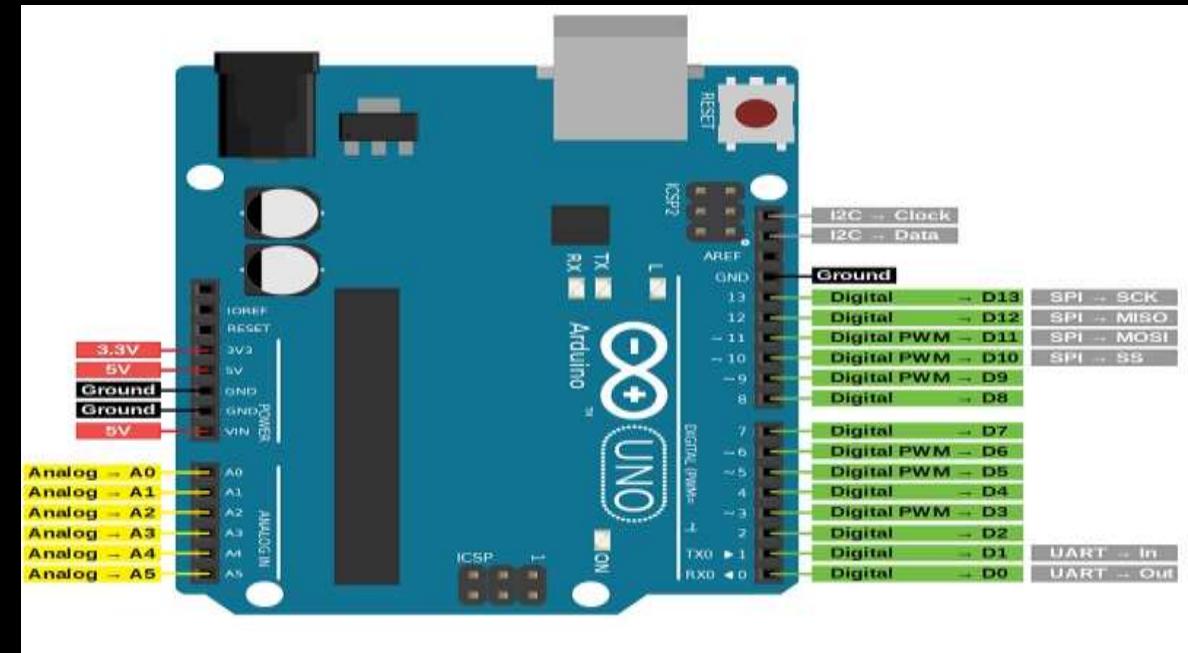
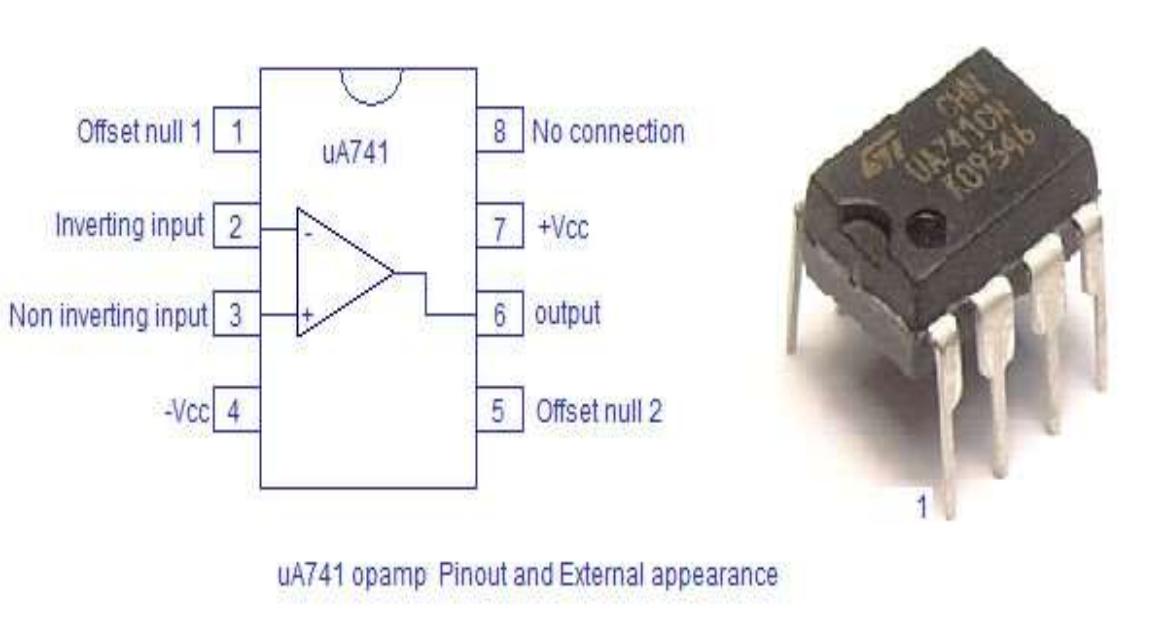
Software Workflow



HARDWARE CIRCUIT



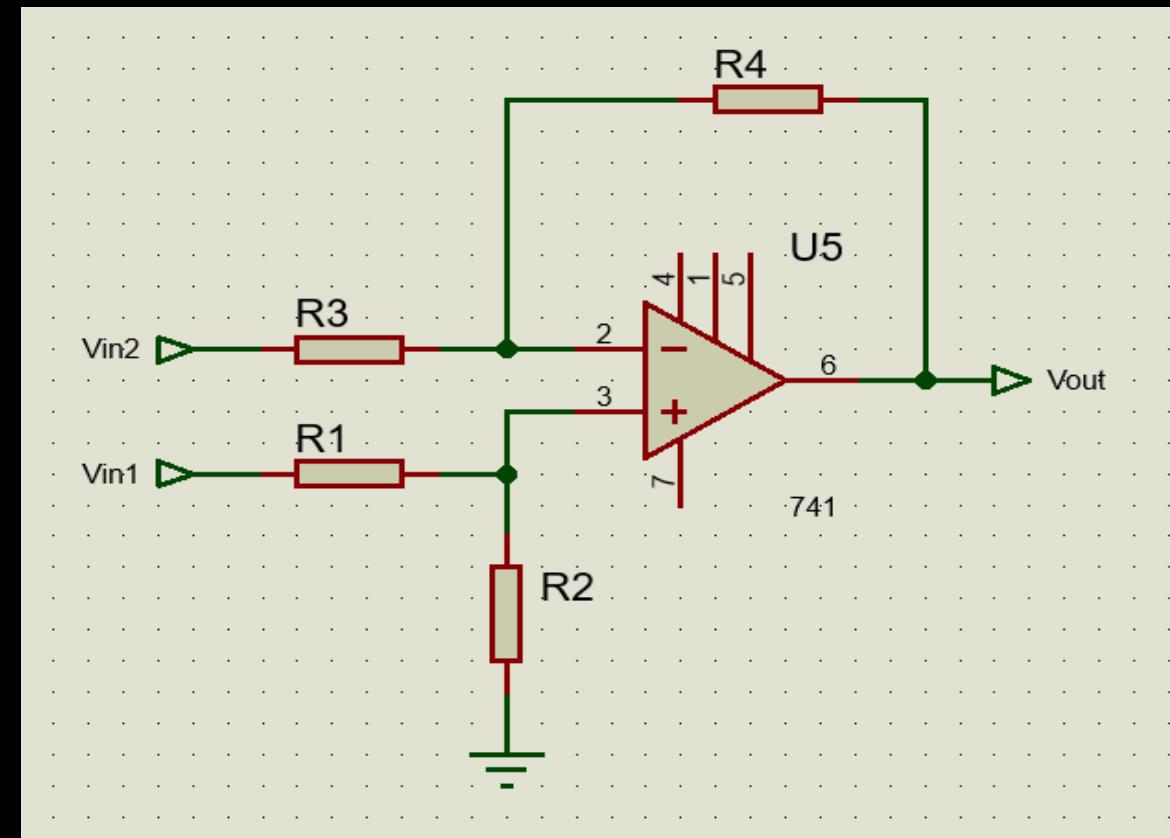
HARDWARE COMPONENTS



CIRCUIT DIAGRAM

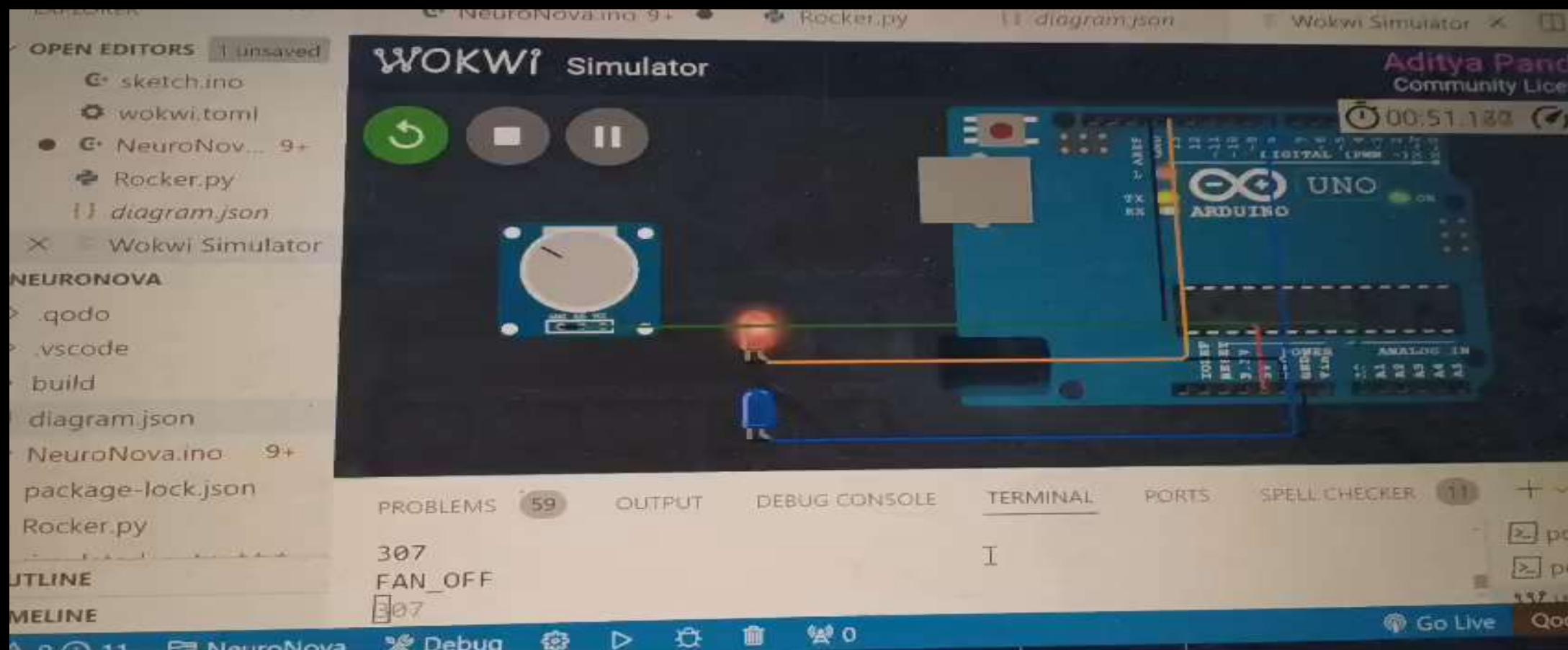
1		8 (NC)
2	-IN	7 (+Vcc) → 5V
3	+IN	6 (OUT)
4	GND	5 (NC)

IC 741

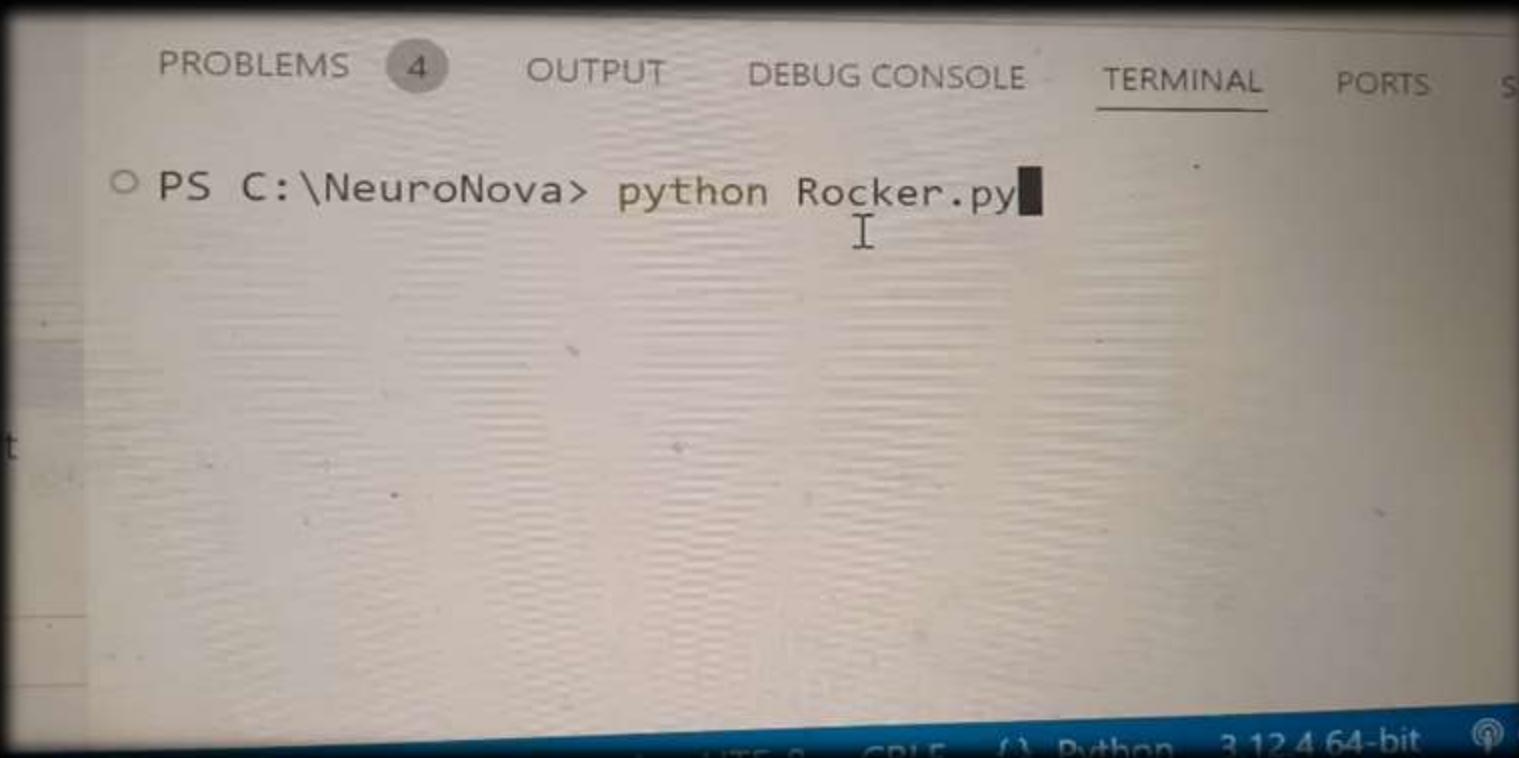


Amplifier Circuit

WOKWI SIMULATION(WOKWI+VS CODE)



MEET NLP ROKER



A screenshot of a terminal window from a code editor. The window has tabs at the top: PROBLEMS (4), OUTPUT, DEBUG CONSOLE, TERMINAL (underlined), PORTS, and S. The terminal content shows a command-line interface with the following text:

```
PS C:\NeuroNova> python Rocker.py
```

The cursor is positioned after the file name "Rocker.py". Below the terminal, the status bar shows: C:\NeuroNova, CR/LF, (3) Python 3.12.4 64-bit.

Python Code

Reads Data Values from text file: simulated_output.txt

Searches for keywords like "BLINK2", "MULTIBLINK" etc and perform respective actions.

Imported files like: pyttsx3, speech_recognition.

RESULTS & ANALYSIS

- Basic emotional states (e.g., stress, calm) inferred using open EEG datasets for calibration. Integrated minimal machine learning model for **adaptive thresholding**.
- Executed **voice command interpretation** within 0.6 seconds using lightweight NLP.

Threshold value : 4200 based on Kaggle dataset.

```
FAN_OFF  
534  
FAN_OFF  
587  
FAN_OFF  
606  
FAN_ON  
606  
MULTIBLINK  
FAN_ON  
799  
FAN_ON  
799  
BLINK2
```



ROCKER



Actions

A photograph of a woman with long dark hair, wearing a yellow sleeveless dress, standing next to a white sailboat. She is looking towards the camera. The boat has a black sail and a small circular logo on its side. The background shows a calm sea under a clear blue sky.

**THANK
YOU!!**