

BRAIN STATES MAPPING SYSTEM

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OUTLINE

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- Project direction.
- System requirements.
- System components.
- System platform.
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- Block diagram.
- Circuit diagram.
- Future scope.
- Running system.
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INTRODUCTION

- Sharing brain states with a computer or external devices can be done using Brain States Mapping System
- The system acquires brain activity through Electroencephalogram signals
- EEG signals get processed using signal-processing techniques
- The waves intensity changes based on the brain state of a person



GOALS AND OBJECTIVE

- The system can ease the communication with the people who are suffering from a disability by knowing their brain states if they're not able to talk.
- To help in understanding the human brainwaves and activities.
- Interaction between brain and light bulbs with least cost.
- Interfaces between brain and light bulb, by turning a specific light (colored) to indicate the which state of the brain.
- The accurate brain state must printed on the TFT screen.



PROJECT DIRECTION

The system focuses on detecting the brain states. For example:

- Awake, power.
- Alert, focused.
- Relaxed.
- Associated with multi-sensing process.



SYSTEM REQUIREMENTS

- The system should be able to detect the brain states automatically.
- The system should be able to display parameters (TFT screen, light bulbs).
- The system should be able to work 24 hours.
- The mindset should be able to interface with the circuit and the computer at the same time.



SYSTEM COMPONENTS

- Arduino mega 2560.
- Mindset.
- EEG NeuroSky chip, forehead/ ear sensors.
- 5 inches TFT screen.
- RA8875 shield.
- 8 channels relay.
- Six 220 light bulb.
- Power distributor.
- Power indicator.
- Wires.



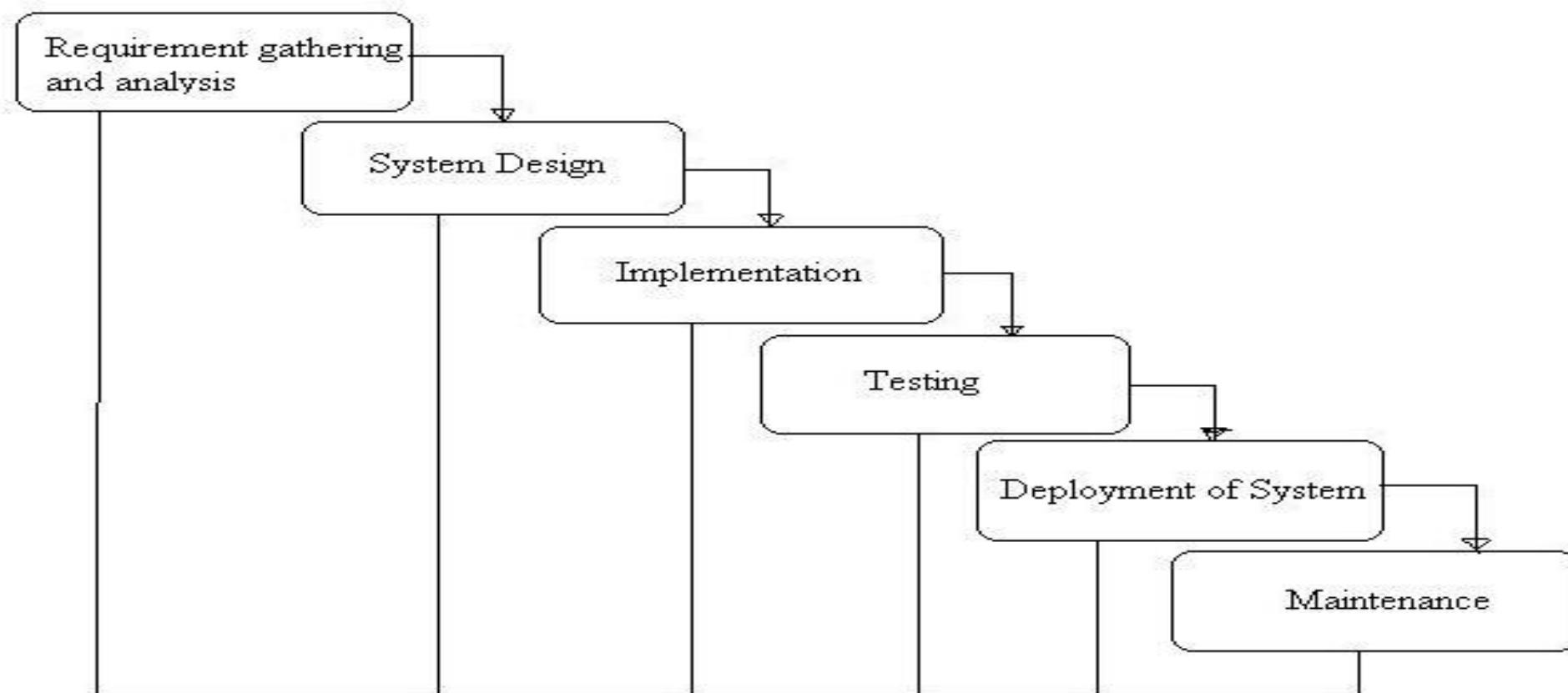
SYSTEM PLATFORM

- Arduino IDE.
- Processing Brain Grapher.

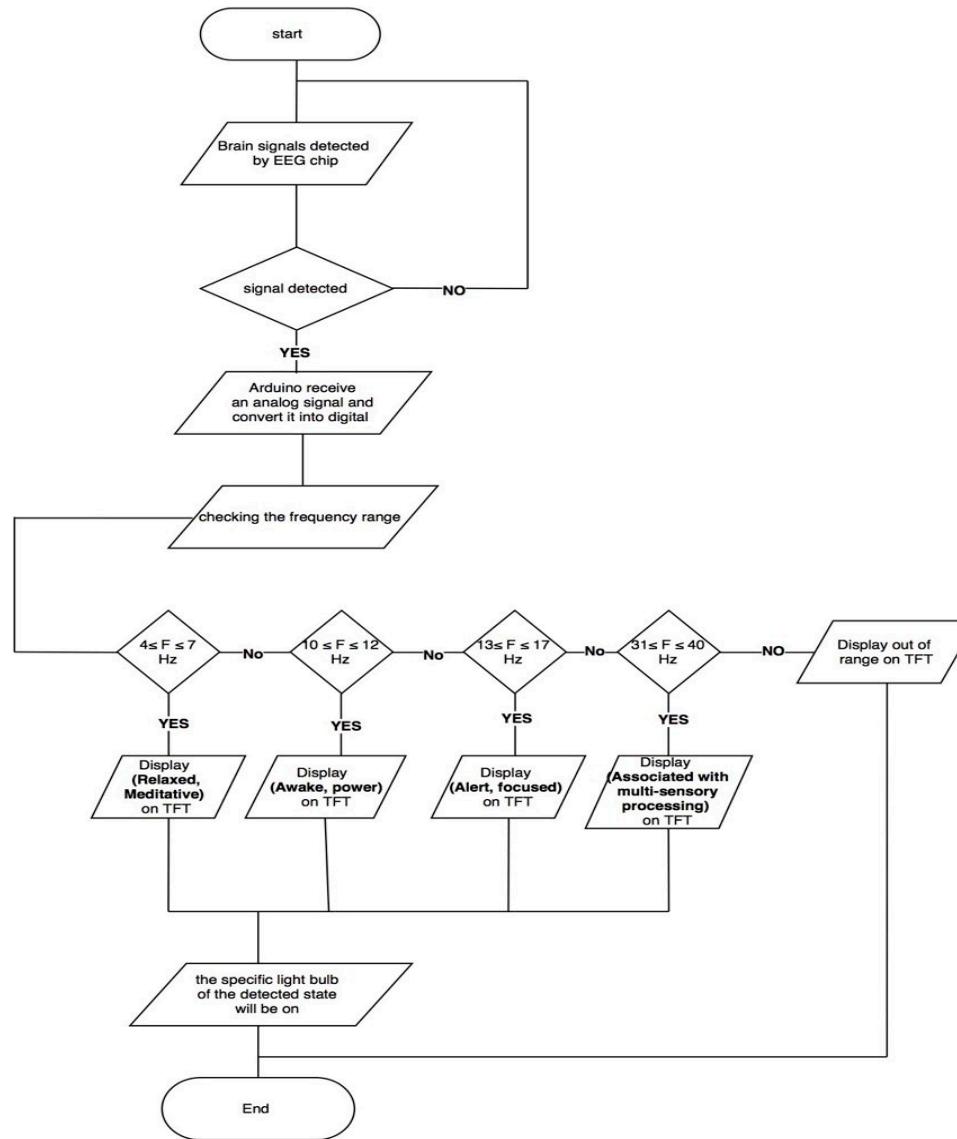


PROJECT METHODOLOGY

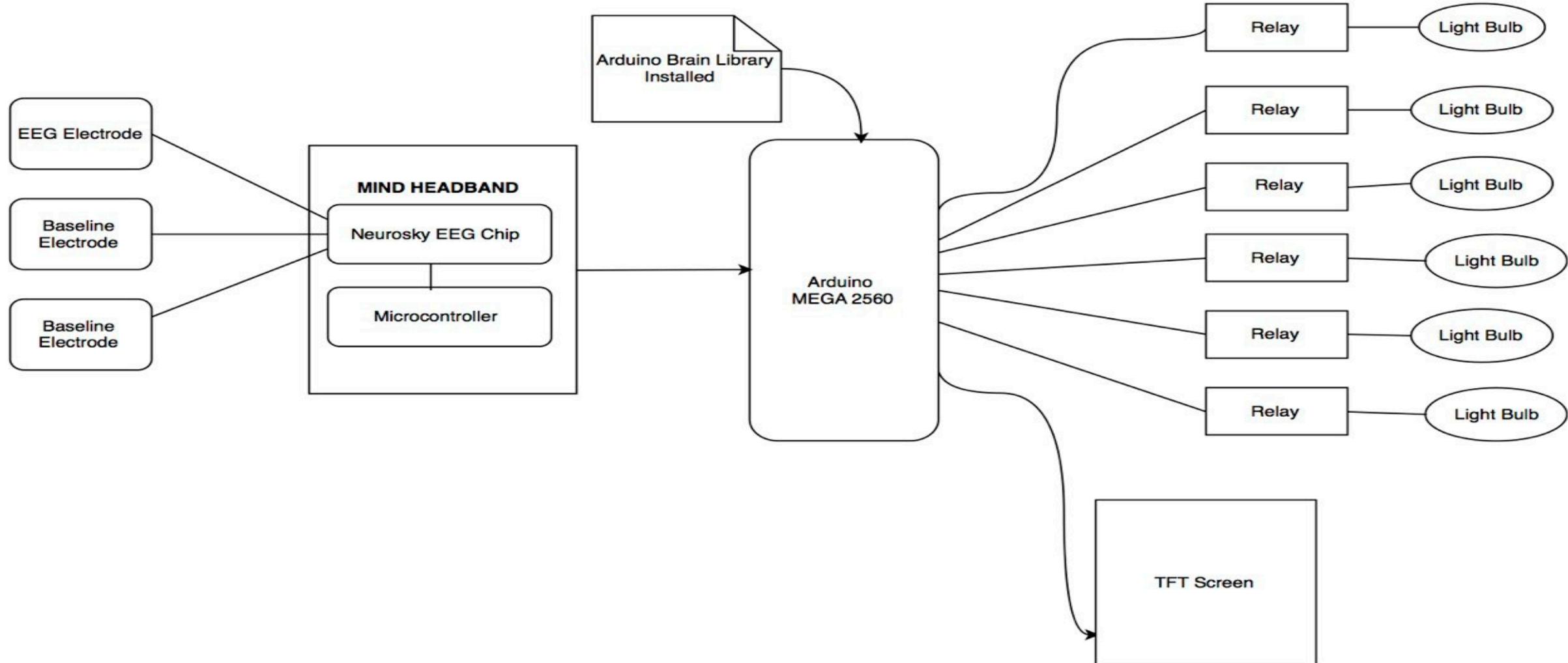
The waterfall model will be utilized to specify the different stages of the process and the order it will carry out.



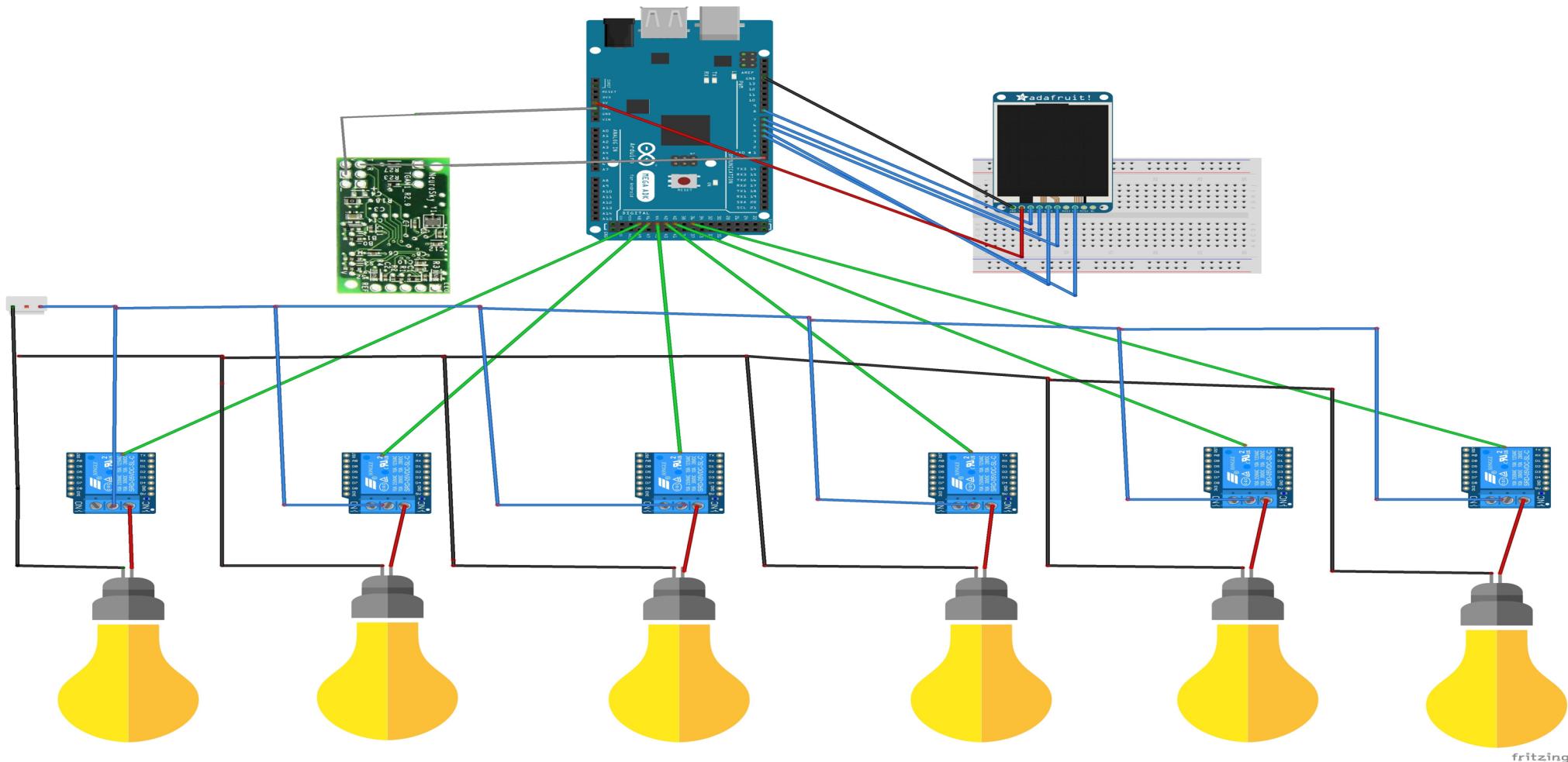
BEHAVIORAL MODEL



BLOCK DIAGRAM



CIRCUIT DIAGRAM

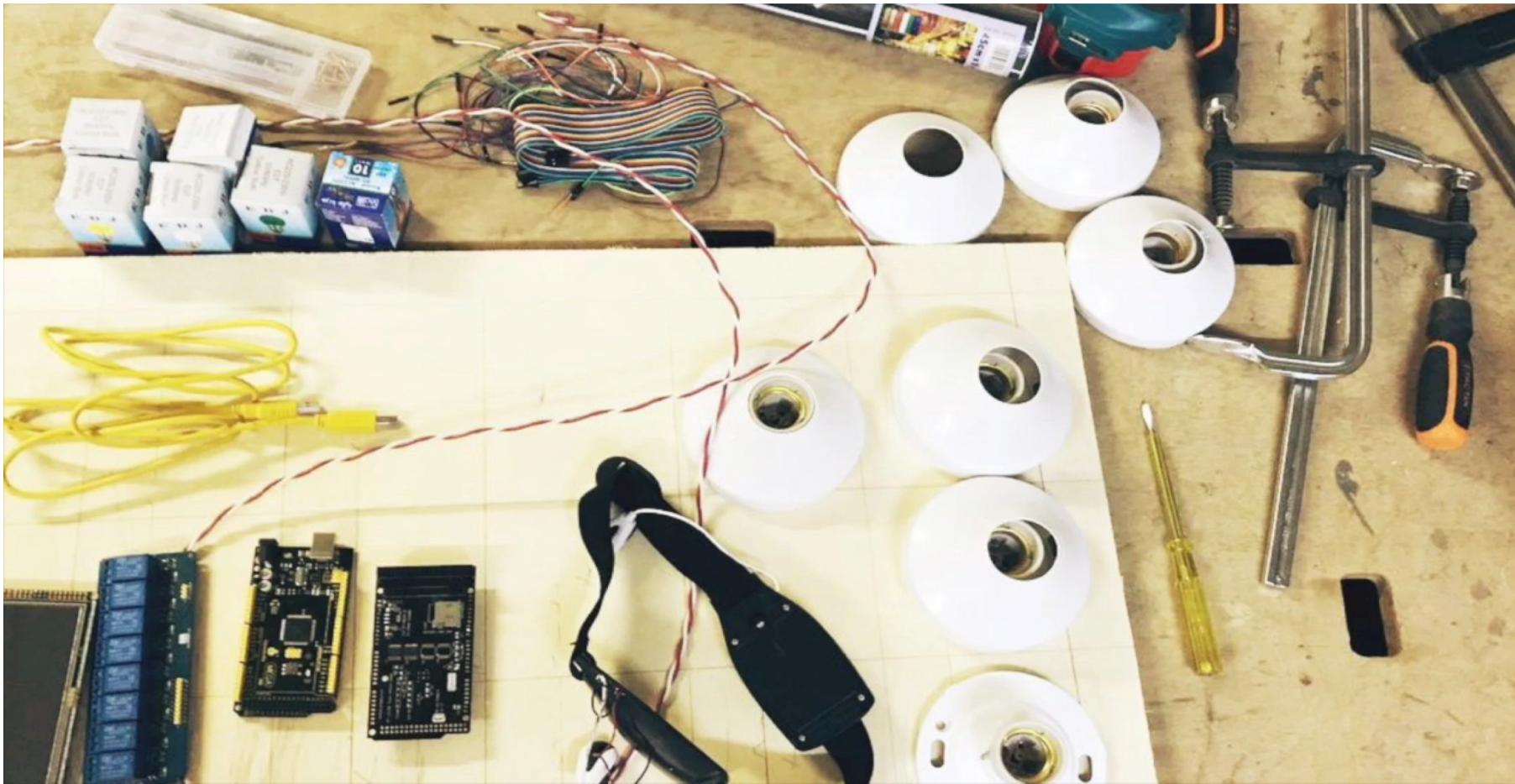


FUTURE SCOPE

- **Currently,** The system detects a limited number of the brain states.
- **In the future:**
 - The system can identify almost all the human brain states.
 - The system can be improved to be useful in many medical and engineering fields.
 - The system can reach a new level of controlling physical things such as a robotic arm or special needs chair using the brain attention.



RUNNING SYSTEM



CONCLUSION

This presentation clarified the following:

- Objective of the system.
- Requirements of the system.
- Components used in the system.
- Platform of the system.



CONCLUSION

- Methodology of the system.
- Flowchart, block diagram and circuit diagram of the system.
- Future scope of the system.
- Running of the system.



