Project 4 Task List

Task 1: Data collecting

1. Obtain data from IMPACT Lab.
2. Understand data format
3. Understand stimuli
4. Segment data using stimuli

Task 2: Scientific Design

1. Find stimulus(incongruity). Use 3-4 different stimulus
2. Data collection. Collect significant data.
3. Training/ testing (weka). Separate the collect data into training and testing.
4. Machine learning. Use different machine learning algorithms to analysis the data.(SVM, Deep learning)
5. Accuracy analysis.

Task 3: Signal Processing

1. Find the stimulus (incongruity) Use 3-4 different stimulus.
2. Data collection
3. Extract brain data after 300 millisecond for 1 s. Design a Signal processing algorithm to detect N300 using a peak detection algorithm(-ve responses) after which has a slow wavering sine wave.
4. Implement in real time(Matlab). Read in data from a file and perform a continuous detection
5. Performance analysis(real time) i.e. Time taken to detect N300. Task 4: Using P300&N300 To Predict User Input
6. Develop an UI to deliver the stimulus(TBD) and collect brain data. Synchronization is required to determine the window of P300/N300.
7. Collect user’s brain signal and ask for their feedback. (Obtain user feedback via the GUI). a-x, b-x, c-v; a-v; a-x,b-x,t-v ----> CAT.
8. Annotate the brain data.
9. Look for N300 and P300 response.
10. Validate the claim by comparing the user feedback and the brain data. (i.e. 88% accuracy.)