Driver Drowsiness Detection System Schedule:

Work	End Date	Owner	Status
Create team	8/31/21	All	
Receive project details	9/3/21	All	
Talk with project sponsor	9/9/21	All	
Research	9/14/21	All	
ConOps Report	9/16/21	All	
Assign subsystems	9/21/21	All	
FSR Report	10/4/21	All	
ICD Report	10/4/21	All	
Decide best ML algorithm	10/8/21	Ali, Coady	
Test out Muse 2 device	10/12/21	Ali, Coady	
Create midterm presentation	10/12/21	All	
Get virtual simulator parts ordered	10/13/21	Ali, Coady	
Midterm Presentation	10/13/21	All	
Learn ML algorithm using basic tutorials and online datasets	10/17/21	Ali, Coady	
Create EEG filtering program	10/17/21	Ali, Coady	
Assemble virtual simulator rig	10/19/21	Ali, Coady	
Workout EEG Schematic in Altium for PCB	10/19/21	Dakota	
Finish Circuit Design of EEG	10/19/21	Dakota	
Collect training data from simulator	10/19/21	All	
Test filtering program off of collected data	10/20/21	Ali, Coady	
Get EEG device parts ordered	10/22/21	Dakota	
Have PCB Design Approved and Ready to Print	10/26/21	Dakota	
Create status update presentation	10/30/21	All	
Status Update Presentation	11/1/21	All	

Create ML algorithm off of collected data	11/2/21	Ali, Coady	
Connect EEG to Electrodes and Test	11/2/21	Dakota	
Validate and Troubleshoot EEG	11/2/21	Dakota	
Test ML algorithm with new simulator data	11/7/21	All	
Verify ML algorithm detection rate > 90%	11/14/21	Ali, Coady	
Finished Working EEG	11/23/21	Dakota	
Final validation checks for each subsystem	11/27/21	All	
Create final presentation	1130/21	All	
Final Presentation	12/01/21	All	
Finish final report	12/4/21	All	
Final Report	12/5/21	All	

- Completed
- On Schedule
- Behind

Driver Drowsiness Detection Validation Plan:

Task	Specification	Result	Owner
ML Algorithm drowsiness detection	>90% success rate		Ali, Coady
Performance of data collection and processing every interval: ● EEG data collection ● Transfer and signal processing ● Fatigue state output	< 30 seconds < 10 seconds < 10 seconds < 10 seconds		All Dakota Ali, Coady
EEG Filters below 8 Hz	f>=8 Hz	See screenshots	Dakota
EEG Filters Above 30 Hz	f<=30 Hz	See screenshots	Dakota
Gain from Instrumentation Amplifier close to 100	G = 80+	G = 1+49,400/Rg, Rg = 560 Ohms, G = 89.2	Dakota
Final voltage readings have amplified from microvolts to volts	0.148<V<0.81172 But V<1 Input 15 Hz, 30uV	Vrms = 0.148 V, Vpk = 0.417 V	Dakota
Final voltage readings have amplified from microvolts to volts (Max and Min Readings)	Max Input: 10 Hz, 30uV Min Input: 1000 Hz, 20 uV	Max: Vrms = 0.594 V, Vpk = 1.67 V Min: Vrms = 4.47 mV, Vpk = 10.5 mV	Dakota
System voltage input	6 V	Regulated to +-5V	All
Peak Power Consumption	2 W		All