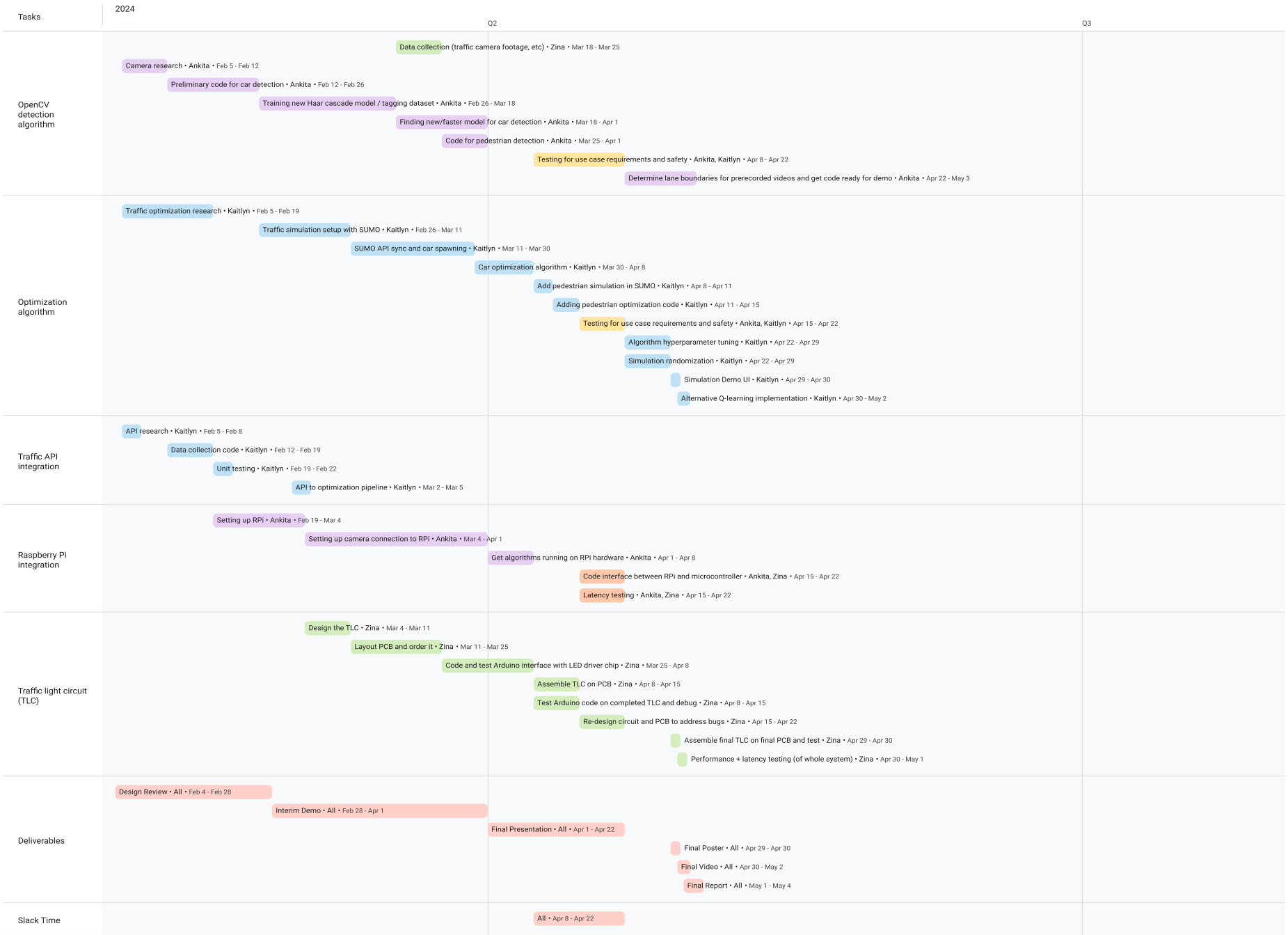
Tasks
2024
Q2
Q3
OpenCV detection algorithm
Data collection (traffic camera footage, etc) • Zina • Mar 18 - Mar 25
Camera research • Ankita • Feb 5 - Feb 12
Preliminary code for car detection • Ankita • Feb 12 - Feb 26
Training new Haar cascade model / tagging dataset • Ankita • Feb 26 - Mar 18
Finding new/faster model for car detection • Ankita • Mar 18 - Apr 1
Code for pedestrian detection • Ankita • Mar 25 - Apr 1
Testing for use case requirements and safety • Ankita, Kaitlyn • Apr 8 - Apr 22
Determine lane boundaries for prerecorded videos and get code ready for demo • Ankita • Apr 22 - May 3
Optimization algorithm
Traffic optimization research • Kaitlyn • Feb 5 - Feb 19
Traffic simulation setup with SUMO • Kaitlyn • Feb 26 - Mar 11
SUMO API sync and car spawning • Kaitlyn • Mar 11 - Mar 30
Car optimization algorithm • Kaitlyn • Mar 30 - Apr 8
Add pedestrian simulation in SUMO • Kaitlyn • Apr 8 - Apr 11
Adding pedestrian optimization code • Kaitlyn • Apr 11 - Apr 15
Testing for use case requirements and safety • Ankita, Kaitlyn • Apr 15 - Apr 22
Algorithm hyperparameter tuning • Kaitlyn • Apr 22 - Apr 29
Simulation randomization • Kaitlyn • Apr 22 - Apr 29
Simulation Demo UI • Kaitlyn • Apr 29 - Apr 30
Alternative Q-learning implementation • Kaitlyn • Apr 30 - May 2
Traffic API integration
API research • Kaitlyn • Feb 5 - Feb 8
Data collection code • Kaitlyn • Feb 12 - Feb 19
Unit testing • Kaitlyn • Feb 19 - Feb 22
API to optimization pipeline • Kaitlyn • Mar 2 - Mar 5
Raspberry Pi integration
Setting up RPi • Ankita • Feb 19 - Mar 4
Setting up camera connection to RPi • Ankita • Mar 4 - Apr 1
Get algorithms running on RPi hardware • Ankita • Apr 1 - Apr 8
Code interface between RPi and microcontroller • Ankita, Zina • Apr 15 - Apr 22
Latency testing • Ankita, Zina • Apr 15 - Apr 22
Traffic light circuit (TLC)
Design the TLC • Zina • Mar 4 - Mar 11
Layout PCB and order it • Zina • Mar 11 - Mar 25
Code and test Arduino interface with LED driver chip • Zina • Mar 25 - Apr 8
Assemble TLC on PCB • Zina • Apr 8 - Apr 15
Test Arduino code on completed TLC and debug • Zina • Apr 8 - Apr 15
Re-design circuit and PCB to address bugs • Zina • Apr 15 - Apr 22
Assemble final TLC on final PCB and test • Zina • Apr 29 - Apr 30
Performance + latency testing (of whole system) • Zina • Apr 30 - May 1
Deliverables
Design Review • All • Feb 4 - Feb 28
Interim Demo • All • Feb 28 - Apr 1
Final Presentation • All • Apr 1 - Apr 22
Final Poster • All • Apr 29 - Apr 30
Final Video • All • Apr 30 - May 2
Final Report • All • May 1 - May 4
Slack Time
All • Apr 8 - Apr 22