Tasks

Timeline	February 2024	March 2024	April 2024	May 2024

OpenCV detection algorithm

- 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
- Data collection (traffic camera footage, etc) • Zina — Mar 18 - Mar 25
- Finding new/faster model for car detection • Ankita — Mar 18 - Apr 1
- Code for pedestrian detection • Ankita — Mar 25 - Apr 1
- Detection algorithm data pipeline to optimization algorithm • Ankita, Kaitlyn — Mar 25 - Apr 1
- Testing for use case requirements and safety • Ankita, Kaitlyn — Apr 8 - Apr 15

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 … • Ankita, Kaitlyn — Apr 15 - Apr 22

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 • Zina — Apr 1 - Apr 8
- 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
- Performance + latency testing (of whole system) • Zina — Apr 8 - Apr 22

Deliverables

- Design Review • All — Feb 4 - Feb 28
- Interim Demo • All — Feb 28 - Apr 1
- Final Presentation • All — Apr 1 - Apr 22

Slack Time

- All — Apr 8 - Apr 22