



Meeting Minutes

Date

A meeting of **SE Project G3** was held at **Lab** on **8th February 2023**.

Attendees

Attendees included **Kandarp Devmurari(GR)**, **Nishith Gangajaliya**, **Dev Jadav**, **Viral Barodia**, **Keshav Somani**, **Om Jhaveri**, **Anuj Meena**, **Dhruv Chokshi**, **Chandra Prakash**

Members not in attendance

Members not in attendance included **Harsh Dhameliya**

Agenda

Introduction, Project Objectives, Timeline, Roles and responsibilities

Project vision and scope

Build a generalized speed detection system, instead of Human speed detection which was the original topic assigned. Our goal was to make a standardized speed detection system, which can be used to detect speeds and get relevant speed data for a wide range of different objects.

Discussion

The project timeline was discussed. We decided on a Incremental development model. We divided the functional and non-functional requirements of our project into requirements regarding the web application and main speed detection algorithm.

Through this division we could gradually add new and different functionalities to the different groups independently.

We thought that the system could be used by traffic control authorities to monitor vehicle speeds, and prevent road accidents. The system could also be used by

sports analysts/trainers/coaches to analysis and improve the performance of athletes.

Roles and Responsibilities

The roles and responsibilities of each team member were discussed. We decided on development team, testing team and documentation team.

The development team was further divided into frontend team, backend team and main python algorithm backend team.

The documentation team was responsible for lab documentation and end of project documents.

The testing team was responsible for written test cases to test the frontend, backend, python backend, GUI and other non-functional requirements.

Task and teams

Frontend: Keshav Somani, Nishith Gangajaliya, Dhruv Chokshi

Backend: Dev Jadav, Om Jhaveri, Viral Barodia

Python backend: Kandarp Devmurari

Documentation: All combined

Testing: Anuj Meena, Chandra Prakash,

Conclusion

The meeting concluded with the agreement that the individual teams would work among themselves and if need occurs then communicate to other members as well. We also decided on having many meeting along the way to discuss the progress of the project.

Date

A meeting of SE Project G3 was held at on 18th February 2023

Attendees

Attendees included Kandarp Devmurari(GR), Nishith Gangajaliya, Dev Jadav, Viral Barodia, Keshav Somani, Om Jhaveri, Dhruv Chokshi

Agenda

Use case of our system, functional and non-functional requirements

Discussion

We determined the functional and non-functional requirements of our system, and made a draft of the use case diagram. We also discussed thought about possible technologies we were going to use to implement the system.

Conclusion

Since, our group did not have much knowledge about web development, we took some time to explore the technologies to implement our system.

Date

A meeting of SE Project G3 was held at on 1st March 2023

Attendees

Attendees included Kandarp Devmurari(GR), Nishith Gangajaliya, Dev Jadav, Viral Barodia, Keshav Somani, Om Jhaveri, Dhruv Chokshi

Agenda

Define the technologies and tools to work on and make an SRS.

Discussion

After exploring for some time, we decided on python for the core speed detection algorithm because of the wide range of detection libraries/packages it supports. We decided on React for frontend, Node js for backend and MongoDB for database.

Conclusion

Since, our group did not have much knowledge about these web development tech stacks, we decided to take some time to learn them before our next meet.

Date

A meeting of SE Project G3 was held at on 4th March 2023

Attendees

Attendees included Kandarp Devmurari(GR), Nishith Gangajaliya, Dev Jadav, Viral Barodia, Keshav Somani, Om Jhaveri, Dhruv Chokshi

Agenda

Start of design and requirement analysis phase

Discussion

In this meeting we studied the requirements of a speed detection system in detail, where it could be used.

We observed that it could be used by traffic control authorities to control the speed limit of vehicles on highways.

It could also be used by sports analysts/coaches/trainers to analyze the speed of athletes and improve their performance.

It could also be used in industrial environments to monitor the speed of machinery and equipment to ensure they are functioning correctly and safely.

Conclusion

In this meet we were able to decide the high level requirements of the system on the basis of its use case.

Date

A meeting of SE Project G3 was held at on 6th March 2023

Attendees

Attendees included Kandarp Devmurari(GR), Nishith Gangajaliya, Dev Jadav, Viral Barodia, Keshav Somani, Om Jhaveri, Dhruv Chokshi

Agenda

Discuss the barebone structure of the speed detection website

Discussion

We discussed the website structure. First, the user lands on the Home page, after that the user can login/signup to be able to access the upload page. On the upload page the user will be able to upload the video feed, and enter the object to track the speed of in the video feed.

Conclusion

We decided to make the barebone frontend and backend including login/signup and home page before the next meet.

Date

A meeting of SE Project G3 was held at on 20th March 2023

Attendees

Attendees included Kandarp Devmurari(GR), Nishith Gangajaliya, Dev Jadav, Viral Barodia, Keshav Somani, Om Jhaveri

Agenda

Discuss the progress of the development

Discussion

The frontend team had made the basic Home page. The backend team had created the login and register API's.

The python backend team had created a basic application to stream the video using the tkinter(python GUI) and opencv libraries of python. We also discussed any changes that need to be done to the frontend, and gave requirements of frontend components to the frontend team for backend functionalities to run.

The python backend team told the frontend to develop a upload page with a drag and drop box to upload the video, and some input fields to take the input to detect the object from the user.

Conclusion

The teams discussed the details of what they had done so far, and the backend teams gave the frontend requirements to the frontend team.

Date

A meeting of SE Project G3 was held at on 23rd March 2023

Attendees

Attendees included Kandarp Devmurari(GR), Nishith Gangajaliya, Dev Jadav, Viral Barodia, Keshav Somani, Om Jhaveri, Dhruv Chokshi

Agenda

Decide the domain analysis model for our system so that it is easier to make unit functions for our system.

Discussion

We discussed the inputs, outputs, processing units, actors and constraints of our system, and then developed a class diagram for our system.
We also developed a high level system design/architecture to understand the flow of our system's working.

Conclusion

After this meeting we had a better understanding of how our system would work as a whole

Date

A meeting of SE Project G3 was held at on 2nd April 2023

Attendees

Attendees included Kandarp Devmurari(GR), Nishith Gangajaliya, Dev Jadav, Viral Barodia, Keshav Somani, Om Jhaveri

Agenda

Discuss the progress on the project on the code side.

Discussion

The frontend team had created the signup/login pages. The python development team created basic tracking algorithm using the haarcascasdeclassifier() model available in the python and a car dataset xml file from the internet, but it was not very accurate and could not detect multiple vehicles in the same frame correctly. We also discussed what type of data we were going to store for our application. We were going to store user login credentials and speed graph images of the vehicles. Since MongoDB handles unstructured data like images very efficiently, we decided to use MongoDB as our DB

Conclusion

We made progress on the speed detection algorithm, decided to use MongoDB as our database.

Date

A meeting of SE Project G3 was held at on 3rd April 2023

Attendees

Attendees included Kandarp Devmurari(GR), Nishith Gangajaliya, Dev Jadav, Viral Barodia, Keshav Somani, Om Jhaveri, Dhruv Chokshi

Agenda

Make a lowly-functional website and a ppt for the mid-evaluation

Discussion

The backend team had connected to the MongoDB, and made a user model to store their details in the DB. We also made a ppt where we displayed what we had done so far, and our end system's functionality will be like. The python team had developed a basic flask web application to stream the video on the localhost.

Conclusion

We made a basic website on localhost and ppt ready for the mid-evaluation.

Date

A meeting of SE Project G3 was held at on 4th April 2023

Attendees

Attendees included Kandarp Devmurari(GR), Nishith Gangajaliya, Dev Jadav, Viral Barodia, Keshav Somani, Om Jhaveri, Dhruv Chokshi

Agenda

Refine the PPT and brief about any new developments made

Discussion

We refined and reviewed the PPT according to the meeting discussion.

Conclusion

Made a PPT and a demonstration ready for mid-evaluation

Date

A meeting of SE Project G3 was held at on 4th April 2023

Attendees

Attendees included Kandarp Devmurari(GR), Dhruv Chokshi, Anuj Meena, Chandra Prakash

Agenda

To tell the testing team to start testing the code modules already created

Discussion

We decided to use unittest for the python backend testing, Mocha Chai for the frontend testing and Jest for normal backend testing.

Conclusion

We started testing as our basic website was ready.

Date

A meeting of **SE Project G3** was held at on **15th April 2023**

Attendees

Attendees included **Kandarp Devmurari(GR), Nishith Gangajaliya, Dev Jadav, Viral Barodia, Keshav Somani, Om Jhaveri, Dhruv Chokshi, Anuj Meena, Chandra Prakash**

Agenda

Discuss the development in frontend, backend, documentation and testing

Discussion

The backend team had connected the backend to the frontend.

The testing team had created some test cases.

Documentation team had created the Introduction chapter for the SRS.

The python backend team had developed a method to detect any type of object using the code previously written. The team wrote a script to crawl positive and negative images from Bing, Google etc., store them, pass them to a cascade trainer software which would generate the xml file from it and return it to the main speed detection flask application.

Conclusion

The python backend had created a way to track objects whose pre-generated xml files did not exist, by generating xml file at run time from the crawled images of the object the user wants detected.

Date

A meeting of SE Project G3 was held at on 20th April 2023

Attendees

Attendees included Kandarp Devmurari(GR), Nishith Gangajaliya, Dev Jadav, Viral Barodia, Keshav Somani, Om Jhaveri, Dhruv Chokshi, Anuj Meena, Chandra Prakash

Agenda

Discuss the development in frontend, backend, documentation and testing

Discussion

The frontend team had created an about us page and an upload page with a drag and drop box, and input fields according to the requirements of the python backend team.

The backend team added email validator for verifying fields before signup.

The python backend team wrote a script to generate speed graphs from the speed csv data that is generated while object tracking and stored them to MongoDB along with the active user's email, using gridFS.

The testing team did black box and white box testing. The documentation team added Domain model analysis chapter and the overall description chapter.

Conclusion

We could now upload the video on the frontend, process the video in python backend, generate and store the graphs in MongoDB, so that the user could see the history of its speed detection after frontend fetched them from DB.

Date

A meeting of SE Project G3 was held at on 22nd April 2023

Attendees

Attendees included Kandarp Devmurari(GR), Nishith Gangajaliya, Dev Jadav, Viral Barodia, Keshav Somani, Om Jhaveri

Agenda

Discuss the development in frontend and backend

Discussion

The frontend team faced some problems with the CSS of the upload and login/signup page.

The backend team added security and restrictions feature. They also added JWT token.

The python team faced the problem where the process of crawling images from web browser, passing them to the cascade trainer software and returning the xml took a lot of time, and so the user had to wait for a long time after uploading a video if its xml did not already exist.

Conclusion

The frontend and python backend teams both faced some problems, which need to be resolved soon

Date

A meeting of SE Project G3 was held at on 24th April 2023

Attendees

Attendees included Kandarp Devmurari(GR), Nishith Gangajaliya, Dev Jadav, Viral Barodia, Keshav Somani, Om Jhaveri

Agenda

Discuss the development in frontend, backend and documentation

Discussion

The frontend CSS issue was resolved. But now they faced another problem of fetching and showing the speed graphs from MongoDB. The problem occurred because the gridFS stored the images in the form of binary data chunks and not images, and so they had to be first converted in a form that could be rendered directly on the frontend.

The solution to long wait time due to the xml generation at run time is to make a lot of pre-generated xml files and store them.

The documentation team began writing the system features, the functional and non-functional requirements of the system.

Conclusion

Old issues of frontend and python backend were resolved but new issue of fetching binary data was generated for the frontend.

Date

A meeting of **SE Project G3** was held at on 26th April 2023

Attendees

Attendees included **Kandarp Devmurari(GR)**, **Nishith Gangajaliya**, **Dev Jadav**, **Viral Barodia**, **Keshav Somani**, **Om Jhaveri**, **Dhruv Chokshi**, **Anuj Meena**, **Chandra Prakash**

Agenda

Discuss the development in frontend, backend, documentation and testing

Discussion

The frontend issue of fetching binary data from MongoDB and displaying it on the history page as images is resolved.

But there is another problem of deploying the python flask application due to the dlib library. Even running the python Flask application on other members system causes problem as the dlib library is not able to install on their systems.

We were able to deploy the backend and frontend on render but there are still port issues.

The documentation team finished the SRS document. The testing team did GUI testing, black box testing, non-functional testing(in jmeter), white box testing for the backend(in jest) and unit testing(in Mocha-Chai, unittest for python)

Conclusion

We were able to deploy flask application, and the backend, frontend but it gave some errors so we decided to run on localhost itself.