

Minutes of the Project Pyro: Supervisor Meeting Minutes

Date : Thursday, 27th January 2022

Time : 1600 Hrs

Location : Zoom (Online)

Present:

Zeph Ng , Backend Developer & IoT Engineer, Project Pyro
 Chua Soon Ann, Computer Vision Developer, Project Pyro
 Pearlyn Low, Frontend Developer, Project Pyro
 Livana Ho, Project Manager, Project Pyro
 Henry Wee, Quality Assurance, Project Pyro
 Professor Thivya, Faculty Supervisor, SMU-SCIS

Late with Apologies:

Absent with Apologies:

Kelly Tay, UI/UX, Project Pyro (Lesson)

Item	Discussion	Action(s)) by
1	<i>Update Project Progress</i>	
1.1	Zeph mentioned that for the updates we will have three components. Firstly is the dashboard, secondly the computer vision model and lastly the thermal camera.	Zeph
1.2	Pearlyn shared screen and Zeph mentioned that the dashboard has already been connected to the database and we have pins that represent the locations of places we are doing deployment. The different color status represents whether there is a full consensus on a fire being present. There is a fire(red), there is a possible fire(yellow), there is no fire(green).	
1.3	Pearlyn gave a brief demo of the dashboard, while Zeph went on to update that he has soldered the thermal camera to the Raspberry Pi and is able to get a proper visualisation. Pearlyn explain if the status is 0,0 the system will reflect green, 0,1 will reflect yellow and 1,1 will reflect red. We also have different views available for the map.	
1.4	Zeph used the visualisation to show how the thermal camera works. In an event of a fire, we will try to capture temperature from each grid in real time to determine whether it is a fire, we will also need to take into consideration that the distance affects the temperature the thermal camera senses.	

1.5	Soon Ann shared screen and explained that we are using Yolo model 5 to train the dataset we found online that is annotated but most of the images are outdoor images that help the model train on fire and smoke but we will need to find dataset that has indoor fire since part of our project to detect indoor fire.	
1.6	Soon Ann thinks that for the purpose of this project, we should focus more on indoor fire due to the landscape of Singapore. Soon Ann also mentioned that if we are not able to find any good datasets, we will need to resort to doing manual annotation. Some issues faced will be fire does not have a fixed shape. He has trained the model on 100 epochs and only have the precision and recall of 0.32 which is mainly due to the lack of fixed shape because every image of a fire has a different fixed shape but after running test cases after training, the model still showed some signs of success when it comes to fire detection.	
1.7	Professor Thivya suggested that we can ask SCDF for datasets to train our model on but Soon Ann mentioned that the main issue is not data but rather having those images annotated because it is time consuming and we do not have resources to pay someone to do it for us.	
1.8	Soon Ann mentioned that if we are not able to find any good datasets, we will need to resort to doing manual annotation. Some issues faced will be fire does not have a fixed shape. He has trained the model on 100 epochs and only have the precision and recall of 0.32 which is mainly due to the lack of fixed shape because every image of a fire has a different fixed shape but after running test cases after training, the model still showed some signs of success when it comes to fire detection. Furthermore, we do not have any special access to GPU to help us with our processing.	
1.9	Professor Thivya then replied and mentioned that we can refer to some crowdsourcing platform that allows us to pay for annotation and the cost is relatively cheap (5cents per image). Professor Thivya mentioned that she will ask her colleagues whether there are better alternatives to Yolov5 on the market because our current metrics are not very ideal. She also suggested increasing the epochs because it may increase the accuracy. She also confirmed that the school does not have any GPU resources that can help us expedite training the model but she will check with Professor Christopher.	
2	<i>Requirements for Project Management</i>	Soon Ann

2.1	Zeph mentioned that none of the group members have taken SPM before so we will need to clarify on the Professor's expectations so we will know what documentation is required.	
2.2	Professor Thivya said Professor Christopher will send us an email to explain the extent of the documentations. Essentially we will need to show any evidence of weekly progress. One such evidence will be Professor comments. We will need to have three groups for the minutes (Internal, Faculty Supervisor and with Sponsors).	
2.3	She mentioned that e evidence of communications between groupmates, like a group channel or a slack channel is crucial. She will also look at mitigation strategies when we are faced with a challenge.	
2.4	Zeph asked about what will happen if we need to change our timeline. Professor Thivya said it is okay as long as the changes are not drastic and it is properly documented and informed. We will need to email both Professor Thivya and Professor Christopher to show the new timeline, reason for the change and how it will impact the other timelines.	
2.5	Zeph mentioned we will update Professor Thivya in detail by the following week.	
3	<i>Mid-term presentation</i>	
3.1	Zeph said if there are no issues faced, we will send out an email by week 7 to confirm the presentation date for week 8. Professor Thiyva replied that Professor Christopher will be the one sending the dates out for both the mid-term presentation and final presentation.	
With no further items, the meeting adjourned at 1630Hrs		

Prepared by/date

: Henry Wee / 27th January 2022