CENTRALIZED HUB FOR SECURING A NETWORK OF IoT DEVICES

2020-086

Project Status Document I

IT 17078306 – Jayawardhane H.N

Bachelor of Science (Hons) Degree in Information Technology

Specialized in Cyber Security

Department of Information Systems Engineering

Sri Lanka Institute of Information Technology

Sri Lanka

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Declaration

I declare that this is my own work and this proposal does not incorporate without

acknowledgement any material previously submitted for a degree or diploma in any other

university or Institute of higher learning and to the best of knowledge and belief it does not contain

any material previously published or written by another person except where the acknowledgement

is made in the text.

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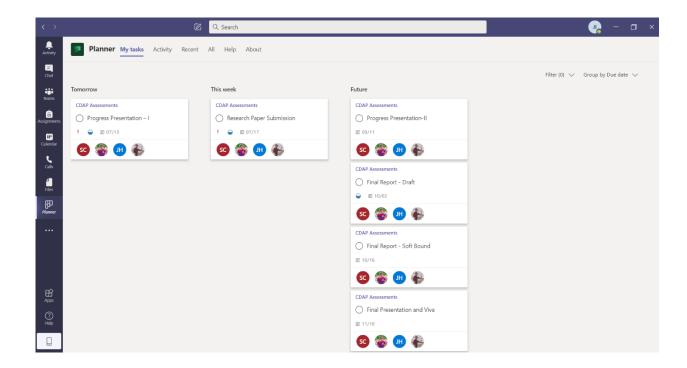
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1. Updated Gantt Chart

My | Malware Detection

	Task name	Start date	End date	Progress	Status		2019							2020					
	IdSK Hallic	11/11/2019		89%	Julius	Oct	Nov	Dec	/Jan	Feb	Mar	Apr	May	Jun	Júl	Aug	Sep	Oct	No
1	─ Topic Selection	11/11/2019		100%			Topic	S											
1.1	Group discussion	11/11/2019		100%	Done		G												
1.2	Field Study	11/15/2019		100%	Done	6	5 1											0	
1.3	Discussion with super		11/29/2019	100%	Done	7/2						31,						CA1	
1.4	Topic selection	12/02/2019		100%	Done		0.	1											
2	☐ Feasibility Study	12/09/2019		100%		10,50,	18	-	Feasibility S	Study			No.						
2.1	Planning	12/09/2019		100%	Done			Planr	ning										
2.2	Technology analysis	12/16/2019	01/24/2020	100%	Done			Tech	nology a										
2.3	Furthur field study	12/23/2019	01/31/2020	100%	Done			FL	urthur field .										
2.4	Resource needs	12/30/2019	01/31/2020	100%	Done				Resource .										
2.5	Project Proposal	01/28/2020	02/25/2020	100%	Done					Project P									
3	─ Design	02/25/2020	03/31/2020	100%							Design								
3.1	Field study	02/25/2020	03/02/2020	100%	Done						E								
3.2	Requirement gathering	03/02/2020	03/10/2020	100%	Done						R								
3.3	Specification	03/06/2020	03/25/2020	100%	Done						Spec								
3.4	Functional and Non fu	03/16/2020	03/31/2020	100%	Done	6					Fun.								
4	System Implementation	04/03/2020	08/18/2020	99%		34						A.	Syster	n Implement	ation				
4.1	Implement Machine Le	04/03/2020	05/21/2020	100%	Done							Implement	Machi						
4.2	Implement web applic	05/19/2020	08/18/2020	100%	Done									Implement	web applica	tion			
4.3	Implement mechanism	07/11/2020	07/11/2020	0%	Open														
4.4	/Implement mechanism	07/11/2020	07/11/2020	0%	Open														
5	Testing	08/31/2020	10/03/2020	0%													Testing		
5.1	Component testing	08/31/2020	10/03/2020	0%	Open												Componen		
5.2	Integrated Testing	09/04/2020	09/07/2020	0%	Open												I.		
5.3	Overall system testing	09/07/2020	09/08/2020	0%	Open														
	71					12						77						77	
Worklo	ad h											O Hou	rs 🔘 .	Tasks					
- 1 :	ayawardhane H.N. It17078306					03	0	0	0	0	0	0 3	. 0	0	0	0	0	0 %	0



2. Work breakdown structure to achieve deadlines

There has been a slight change of plans with the topic change request I had submitted to the panel.

Hence the previously estimated time in the initial proposal was for the originally planned topic "Update Automation" but the new plan is for "Malware Detection/Mitigation"

Task	Estir	nated	Actual			
	Start date	End date	Start date	End date		
Implement Machine Learning (ML) model to detect a malicious .exe	2020/05/29	2020/06/10	2020/06/01	2020/06/14		
2. Train ML model	2020/06/11	2020/06/12	2020/06/14	2020/06/15		
3. Test ML model	2020/06/12	2020/06/13	2020/06/15	2020/06/16		
4. Implement and host a website to have both	2020/06/14	2020/06/16	2020/06/17	2020/06/18		

"legitimate" and "malicious" .exe files				
5. Implement "ARCSECURE" web application to make the component available to the users.	2020/06/16	2020/07/01	2020/06/18	2020/07/10

3. Finalized work breakdown structure and resource allocation

Task	Estimated		Actual		
	Start date	End date	Start date	End date	
6. Create a mechanism to separately hold "legitimate" and "malicious" .exe files in a cloud environment	2020/07/02	2020/07/20	-	-	
7. Delete files detected as malicious from system	2020/07/21	2020/08/15	-	-	

4. Project Management tool

4.1.Milestones

- Implement Machine Learning (ML) model to detect a malicious .exe
- Train ML model
- Test ML model
- Implement and host a website to have both "legitimate" and "malicious" .exe files
- Implement "ARCSECURE" web application to make the component available to the users.

4.2.Test results

Now testing algorithms

DecisionTree : 99.119884 %

RandomForest : 99.391525 %

GradientBoosting : 98.826512 %

AdaBoost : 98.551250 %

GNB : 70.105034 %

Winner algorithm is RandomForest with a 99.391525 % success Saving algorithm and feature list in classifier directory... Saved

4.3.User-task allocation details

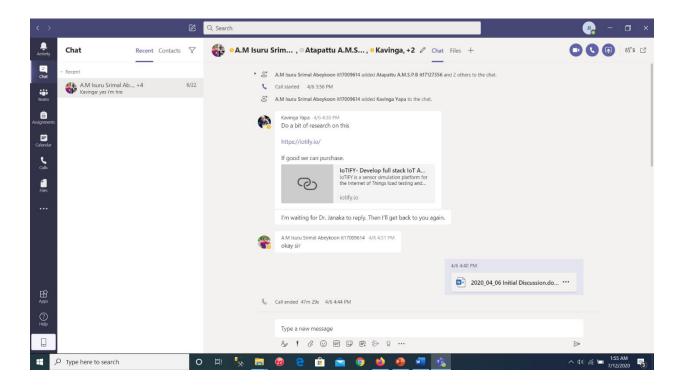
Task	Estimated			
	Start date	End date		
Implement Machine Learning (ML) model to detect a malicious .exe	2020/05/29	2020/06/10		
2. Train ML model	2020/06/11	2020/06/12		
3. Test ML model	2020/06/12	2020/06/13		

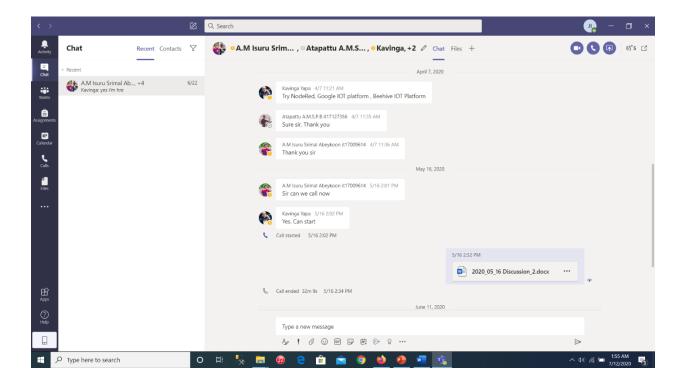
4. Implement and host a website to have both "legitimate" and "malicious" .exe files	2020/06/14	2020/06/16
5. Implement "ARCSECURE" web application to make the component available to the users.	2020/06/16	2020/07/01
6. Create a mechanism to separately hold "legitimate" and "malicious" .exe files in a cloud environment	2020/07/02	2020/07/20
7. Delete files detected as malicious from system	2020/07/21	2020/08/15

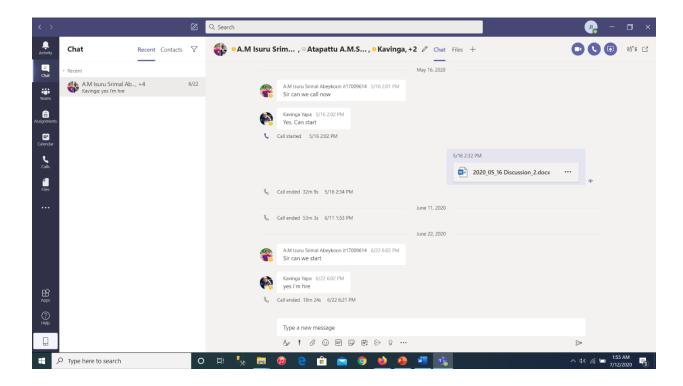
4.4.Documentation work

Project charter - Completed
 Project proposal - Completed
 Project status document - Completed
 Progress Presentation I - Completed
 Research Paper - Pending

Screenshots of Chats and Calls



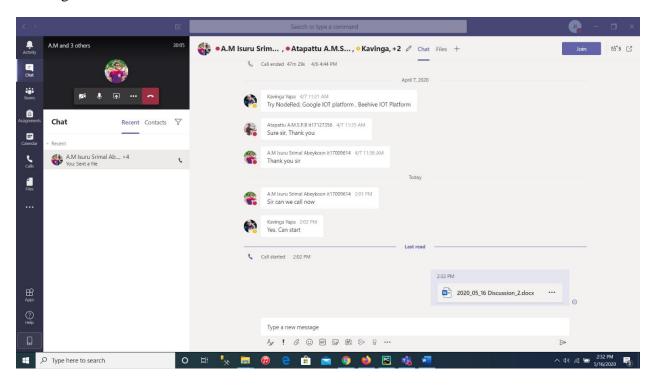




Meeting 1:



Meeting 2:



Meeting 3:

