

# **CENTRALIZED HUB FOR SECURING A NETWORK OF IoT DEVICES**

2020-086

Project Status Document 1

IT17126816 – Samarasekara C.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

July 2020

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## DECLARATION

I declare that this is our 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 our 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.

Name	Student ID	Signature
Samarasekara C. N	IT17126816	

The above candidates are carrying out research for the undergraduate Dissertation under my supervision.

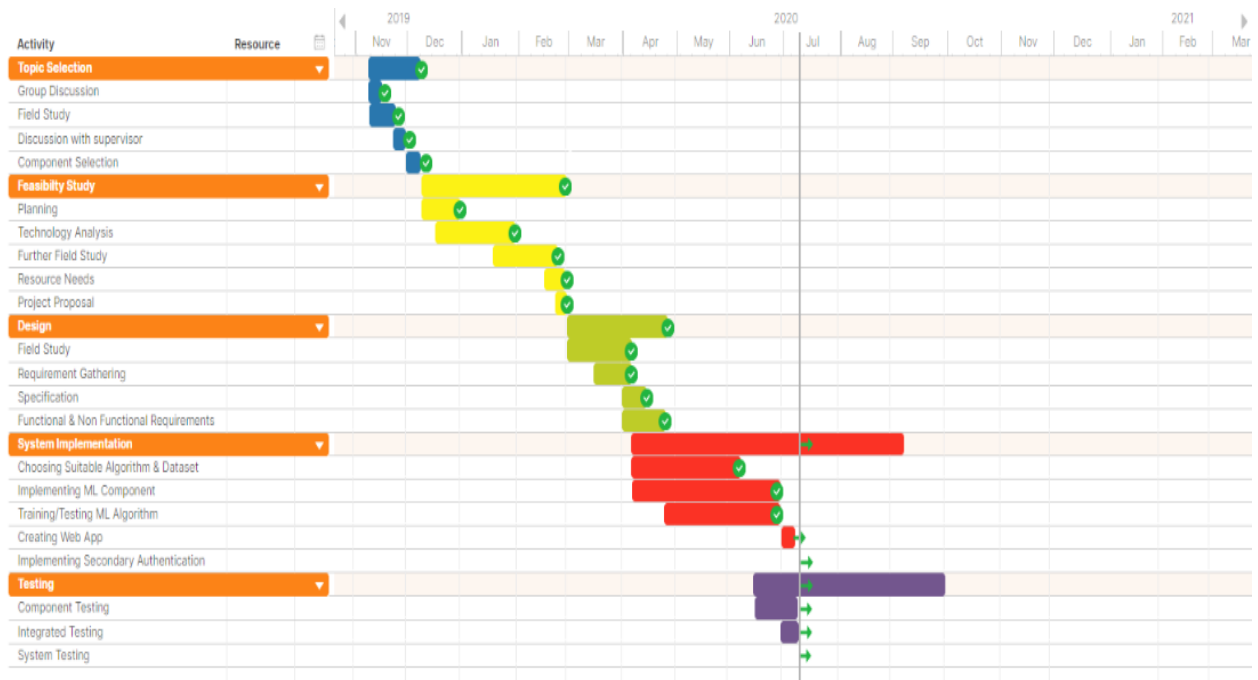
Signature of the Supervisor:

Date:

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# 1 UPDATED GNAAT CHART



The screenshot shows the Microsoft Planner application interface. The left sidebar contains navigation icons for Activity, Chat, Teams, Assignments, Calendar, Calls, Planner, and a mobile app icon. The main area is titled 'Planner My tasks' and includes tabs for Activity, Recent, All, Help, and About. The tasks are organized into three columns: Tomorrow, This week, and Future. Each column displays a list of tasks with their due dates and assigned team members (SC, JH, and others).

**Tomorrow:**

- CDAP Assessments
- Progress Presentation – I
- 07/13
- SC, JH, and others

**This week:**

- CDAP Assessments
- Research Paper Submission
- 07/17
- SC, JH, and others

**Future:**

- CDAP Assessments
- Progress Presentation-II
- 09/11
- SC, JH, and others
- CDAP Assessments
- Final Report - Draft
- 10/02
- SC, JH, and others
- CDAP Assessments
- Final Report - Soft Bound
- 10/16
- SC, JH, and others
- CDAP Assessments
- Final Presentation and Viva

## 2 WORK BREAKDOWN STRUCTURE (ACHIEVE DEADLINES)

\*Most deadlines could not be met or got prolonged due to various unforeseeable circumstances.

Task	Estimated		Actual	
	Start Date	End Date	Start Date	End Date
ML Model for Keystroke Dynamics	04/10/2020	06/1/2020	05/7/2020	07/10/2020
Train Model	05/21/2020	05/25/2020	06/27/2020	06/30/2020
Test Model	05/01/2020	05/31/2020	05/01/2020	06/03/2020
Develop and host Web App	05/25/2020	06/1/2020	07/01/2020	08/1/2020

## 3 FINALIZED WORK BREAKDOWN STRUCTURE

Task	Estimated		Actual	
	Start Date	End Date	Start Date	End Date
Implement a Secondary Authentication Mechanism	07/13/2020	08/13/2020	-	-
Testing	08/01/2020	09/05/2020	-	-

## 4 PROJECT MANAGEMENT TOOLS

### 4.1 Milestones

- Identify prevailing authentication issues of IOT.
- Find suitable multi factor authentication mechanisms.
- Keystroke Dynamics with Machine Learning.
- Find suitable algorithm and dataset.
- Train and test algorithm.
- Implement a web app for user authentication.

### 4.2 Test results

```
Accuracy of Logistic Regression Classifier Model is: 92.98245614035088  
Mis-Classification Rate of Model is: 7.017543859649122  
Area Under Curve: 0.9719206474536123  
Process finished with exit code 0
```

```
Accuracy of KNN Model is: 95.78947368421052  
Mis-Classification Rate of Model is: 4.210526315789476  
Area Under Curve: 0.9941883372734437  
Process finished with exit code 0
```

```
Accuracy of Decision Tree Classifier Model is: 97.19298245614036  
Mis-Classification Rate of Model is: 2.8070175438596467  
Area Under Curve: 0.9719294789717327  
Process finished with exit code 0
```

```
Accuracy of Random Forest Classifier Model is: 99.64912280701755  
Mis-Classification Rate of Model is: 0.35087719298245723  
Area Under Curve: 1.0  
Process finished with exit code 0
```

```

Accuracy of Extra Trees Classifier Model is: 99.64912280701755

Mis-Classification Rate of Model is: 0.35087719298245723

Area Under Curve: 0.9999506514015002

Process finished with exit code 0

```

### 4.3 User Task Allocation Details

Task	Estimated	
	Start Date	End Date
Keystroke Dynamics Algorithm Testing	04/21/2020	06/20/2020
Keystroke Dynamics Model (Training & Testing)	05/01/2020	07/10/2020
Web App for User Authentication (UI)	07/01/2020	08/01/2020

### 4.4 Documentation Work

- Project Charter **(Complete)**
- Project Proposal **(Complete)**
- Project Status Document **(Complete)**
- Progress Presentation I **(Complete)**
- Research Paper **(Pending)**



