



## Sri Lanka Institute of Information Technology

### Project Topic Assessment – 2019

#### Research Problem:

Floods are one of the most common types of disasters that affect Sri Lanka. The number of people affected by floods has reached over 120,000 in June 2018. When considering flooding in the Kelani river basin caused to affect areas such as Kaduwela, Kelaniya, Malabe, Hanwella, Angoda and Mulleriyawa etc.

Since, there is a lack of a proper flood prediction system people may not get early preparation for the situations like floods. This will lead to loss of lives, displacement of people, destruction of houses, damages for their properties and spreading of waterborne diseases like diarrhea, dengue as well.

Our main concern is to predict flood disasters around Kaduwela area based on the Kelani river to inform and warn public about the risk and optimizing flood relief.

#### Research Area:

- Data Science.
- Machine Learning.
- Image Processing.
- Optimization.
- Artificial Intelligence.

### Solution proposed:

This project is basically focused on prediction of floods in Kaduwela area based on Kelani river basin and dry ration optimization. Though there are plenty of mobile applications available for forecasting floods, most of them are not applicable to Sri Lanka. With the proposed application, flood forecasting including water level prediction and time prediction according to the rainfall along with flood simulation will manage to give proper warnings to the public. The nearest safest areas will be indicated to whom live in flood risk areas as well. Also, the amount of dry rations need to be sent for the flood victims will also be optimized.

#### Research Functions:

1. River water level prediction.
2. Time duration prediction for the flood impact.
3. Flood simulation with optimum path for safest location using GIS.
4. Dry ration optimization using satellite images.

### Technologies to be used:

- Machine Learning, Optimization, Artificial Neural Network, GIS and Data Mining
- Dashboard
  - Frontend - Angular
  - Backend - Node JS
- Databases – NoSQL
- Mobile App - Ionic

## Team Members:

Student Name	Student ID
Dilini H.O Pathirana.	IT16073838
G.C Laveesha Chandrasiri.	IT16071094
Jayasekara M.D.S.	IT13112660
D.H Vishara Dilmi.	IT16161252

## For official use only

Acceptable: YES/NO

Changes proposed:

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Any other Comments:

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Approved by CDAP Group:

Member's Name	Signature

## Important:

1. According to the comments given by the panel, do the necessary modifications and get the approval by the **same panel**.
2. If the project topic is rejected, find out a new topic and inform the CDAP Group for a new topic pre-assessment.
3. A form approved by the panel must be attached to the **Project Charter Form**.