Smart Vessel Monitoring System.

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Declaration

I declare that this dissertation is my own work and has not been submitted in any form for another degree or diploma at any university or other institute of tertiary education. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

M.A.D.T.R. Nayanananda

Name of Student

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Date:

Supervised by:

Mr. M.F.M. Firdhous

Name of Supervisor

Signature of Supervisor

Date:

Dedication

To my parents…

With love and gratitude

Acknowledgement

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Abstract

Fish and fishery product sector plays an important role in Sri Lanka's social and economic life. Deep sea fishing is the main occupation of over two hundred thousands of families in coastal belt. Seafood export sector has a significant scope to uplift their living standards by creating a good market demand for Sri Lankan fishery products.

As the main buyer of Sri Lankan fish products, European Union enforced restrictions over Sri Lankan fishery products by demanding assurance against illegal fishing. Even though the Department of Fisheries and Aquatic Resources of Sri Lanka laid a strong foundation for a managed and controlled fishery, most of the effort fell apart due to absence of electronic vessel monitoring system. Projects initiated to introduce commercial vessel monitoring systems failed due to unbearable cost and no localization to support literacy level of Sri Lankan fishermen.

This project researched on introducing an electronic vessel monitoring system to eliminate illegal fishing and maintain higher sustainability rate of marine lives while providing evidences for legal and controlled fishery in Sri Lanka. To fulfill the main objective as low cost and localized solution, the design was aimed to introduce a vessel monitoring system as an application which converts fisherman's mobile phone into a vessel monitoring system by utilizing common features of smartphones such as GPS receiver, mobile data access, internal storage and Unicode compatibilities. Going beyond the vessel monitoring system, design was embedded E-Logbook as a separate section to records fish catch details, to be used as a good source of information which helps to maintain higher sustainability rate of marine lives by identifying feeding and breeding grounds.

Administration console facilitates harbor officers to record fishing trip details while the monitoring console shows continuous vessel's positions to overlook the trip route. Systems executes a rule based verification at the end of each fishing trip to ensure the legality of its catch and suitability of exporting to European market. System certifies the catch when the vessel have sailed only in legal zone and the catch satisfied commercial fishing regulation. Harbor officers do not release the harvest without catch certificate. That gives a good assurance of Sri Lanka compliance with international trade regulations and marine policies for sustainable fishery.

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