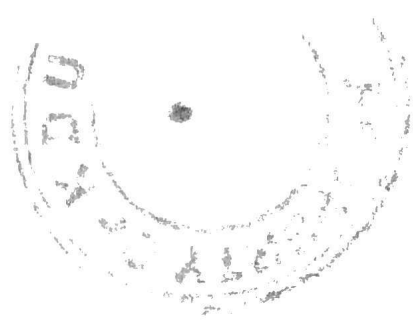


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ABSTRACT



Sri Lanka is a maritime nation, the importance of the oceans remains unchanged as Sri Lanka is heavily dependent on maritime trade and commerce. Hence, the Sri Lanka Navy (SLN) has to play a key role in national and international security being the first line of defence. FAC were deployed for special tasks during the war period and it has not changed even a time of peace. In the present-day context, these craft are specially assigned for various tasks and the reliability of such craft is significantly important. Furthermore, the successes of these assigned tasks are directly in line with the operational readiness of the main machinery. Even though pre-checks are carried out before sea deployments of FAC, there is a tendency to report unexpected failures/defects in main engines during the patrolling and this has directly affected effective sea deployment. In the present-day context, several types of machine learning tools are using for pre-failure prediction of machinery to avoid distress during operations. In this backdrop, the researcher attempted to identify the impact of pre-failure prediction of the main engine to maintain the operational state of FAC. The researcher, adopted a quantitative and qualitative methodology to identify the relationship between independent variables and the dependent variable to originate comprehensive solutions. Primary data were collected through Likert scale closed-ended questionnaires and semi-structured interviews. Findings of the research highlight that the pre-failure prediction and identifying the failures of main engines in advance create a positive impact for maintaining the operational state of FAC with minimizing the non-operational period, considerable money serving and saving manpower. Further, it was revealed that existing maintenance practice having less effectiveness considering the condition of the spare parts and involving with very high maintenance cost. Finally, it was identified that pre-failure prediction using condition-based monitoring is facilitating to maintain the healthy operational state of the FAC with compare to existing maintenance practice.

Key Words: Fast Attack Craft, Main Engine, Operational State, Pre- Failure Prediction, Planned Preventive Maintenance, Health Monitoring, Condition Monitoring.