**PUDUCHERRY TECHNOLOGICAL UNIVERSITY,**

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING.**

**BATCH (2017-2021)**

**TITLE OF THE PROJECT:**

**STABILITY AND STABILIZATION OF NETWORKED LOAD FREQUENCY CONTROL SYSTEMS INTEGRATED WITH ELECTRIC VEHICLE (EV) AGGREGATORS.**

**BATCH LIST:**

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| **SL.NO.** | **REG.NO** | **NAMES** |
| **1** | **17CE153** | **SHARINI RITHIGAA B S** |
| **2** | **17EE111** | **GOKULNATH M** |
| **3** | **17EE118** | **KALAVAGUNTA VAMSHI** |
| **4** | **17EE119** | **KALLA ANIL SAI KUMAR** |

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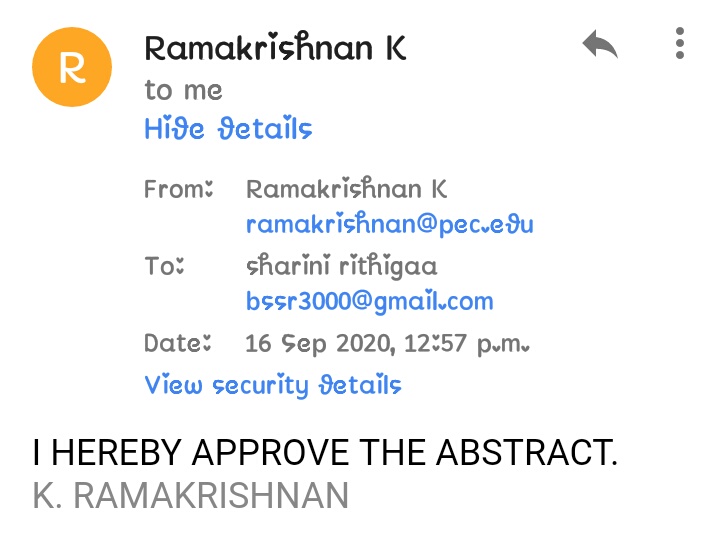
**ABSTRACT**:

Due to increasing environmental concerns, the gradual depletion of fossil resources and the increased penetration of highly variable renewable energy (RE) power generation, frequency control and stability are becoming more and more important. Electric vehicles (EVs) with vehicle to grid (V2G) technology have become a promising tool that can mitigate the intermittent effects of renewable energy sources and regulate the system frequency. This project particularly deals with computation of communication time delays on stability regions and stability delay margins of the PI controller between Electric Vehicle (EV) aggregator and smart grid of a single area Load Frequency Control (LFC) system. Whenever there is heavy power demand or power shortage the frequency of the voltage between the tie lines connecting Electric Vehicle Aggregator and smart grid reduces. This reduction in frequency is sensed through sensor and the PI controller sends the information to information centre. A graphical method of characterizing stability boundary locus is implemented. For a given time delay, the method computes all the stabilizing gains of PI controller, which constitutes a stability regions in parameters of space of PI controller. Later, in order to complement the stability regions, a frequency domain exact method is used to calculate stability delay margins for various values of PI controller gains. The complete analysis is made in order to pass the information of error in the system within the stability margin delay to bring the system to equilibrium point.

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**APPROVAL FROM GUIDE:**

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