**Project Group Number: 31**

**Project Title: SSVEP Classification**

**Project Domain/Centre:  Speech Processing**

**Project Guide: Prof. Vidya T.V**

**Project Summary:**

This is a project on Brain Computer interfacing, which a system that is a direct communication pathway between the brain and an external computing device. We are looking at SSVEP, out of the many possible BCI paradigms. This Steady State Visually Evoked Potential is a phenomenon which is the response of the brain to a flickering source of light. The response has been observed to have a waveform embedded in it, which is frequency and phase locked to this flickering stimulus.

The EEG waveform would be taken from the occipital lobe of the brain by electrodes placed on the scalp of the person, in non-invasive manner and used for classification. This project implements an SSVEP classifier using a statistical analysis of the EEG waveform. We are using a recently emerged EEG processing technique that relies on covariance matrices and their inherent geometry in a Riemannian space to cluster and classify EEG signals.

We will be implementing the signal processing techniques on MATLAB and astable multivibrator circuits would control an array of flickering LEDs to act as the flickering stimulus to give us data to work with. The OpenBCI Hardware and OpenViBE software will be used to capture EEG signals for analysis