# **Project Requirement Document**

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# Lecture system

* Read data from text file
* Generate an animated video based on data read from input file
* Integrate the lecture system with a well known well established open source website

# Handwriting recognition

## Hardware Requirements

* Quad core latest generation computer with enough ram to process high fps video in appropriate time.

## Software Requirements

* Computer vision library
* Computer vision framework software

## Technical Requirements

* Relatively good resolution images of handwriting
* Appropriately written image processor function that ensures the efficient and quick processing of images.

# Voice recording

* Wireless data transmission medium e.g. NRF24l01
* Central processing board e.g. Arduino Nano
* Good quality microphone

# Live streaming

* Generation of text data on run-time
* Transmission of text data on run-time
* Generation of animated video based on received data

# Google searching

* Perform google search on text tags
* Google search engine integration with lecture system
* Display search results on video at hover of tag text

# Tag generation and searching in video timeline

* Implementation of machine learning algorithms for tag generation
* Collection of training and testing data
* System training based on training data and testing based on chosen algorithm
* Create tags on video timeline
* Searching based on tags

# Active learning

* Collection and training of system from user
* Control speed of video based on collected data

# Automatic notes generation

* Heading generation based on tags stored for corresponding lecture
* Generation of key points by gathering data from online search engines like google
* Generate pdf format document of notes

# Web application

* Integration of lecture system with an online open-source lecture website
* Development of application modules in a web development framework

# Orientation sensing of board marker

## Hardware Requirements

* MPU 6050 orientation module

## Technical Requirements

* Get raw orientation data from sensor
* Process data and get x-axis, y-axis and z-axis data
* Get Gyro and acceleration data

# Position detection of board marker

## Hardware Requirements

* GoPro Hero 5 High Fps Camera

## Technical Requirements

* Software integration with video feed
* Full fps acquisition while processing each frame