

## AUTOMATE TRAFFIC LIGHT SYSTEM USING REAL TIME CCTV VIDEOS

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As a result of over population of vehicles on the road and lack of infrastructure traffic congestion becomes a huge problem in Sri Lanka. Among the solutions to this problem Closed Circuit Television (CCTV) provides more flexibility and reliability. Due to that CCTV is used as an answer to that problem.

Current traffic management system runs fix times, which will sometimes not enough to clear the whole traffic but sometimes it will waste the time where there are no vehicles on the road. In this research the objective was to minimize the wastage of time when roads are empty by the use of CCTVs.

By taking the video footage from CCTV which is placed on the road a program was developed to process the frames of the video footage using Matlab computational software and compute the average pixel variation of the video footage from frame to frame. It could track whether there are vehicles on the road or the road is empty. Then Arduino microprocessor was used to get output signal from Matlab. After that a PLC (Programmable Logic Circuit) program was developed to turn the road's color light into red where there are no vehicles on the road. It will help to minimize the wastage of green time where there are no vehicles on the road.

**Keywords:** Image processing, Closed Circuit Television (CCTV), Matlab, Programmable Logic Circuit (PLC)