AUTOMATION OF VCR RECORDING DURING ADITYA SHOTS

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ABSTRACT

Recording of ADITYA machine status during ADITYA shots has been automated by programming a microcontroller. Normally VCR is used for recording picture and playback. All the functions like recording, play, forward, rewind and stop etc. are performed using an Infrared remote for convenient operation. During the machine operation, operator has to take care of various things and hence the task of recording the machine status during shots along with other important tasks becomes some times very much critical for the operator. Being manual operation, operator may sometime forget also to record. We therefore, want to make VCR operation automatic with the help of microcontroller. IR remote basically work on IrDA (Infrared Data Association) protocol. It generates 16 – bit code for recording and 16 – bit code for stop function. An effort has been made to generate these codes using programmable microcontroller. An external pulse from Aditya Pulse Power System (APPS) triggers the microcontroller and it generates the recording codes few second prior to shots. It again generates the stop code 32 seconds after the recording code to stop the recording. The whole process, being synchronized with APPS, does not require any manual intervention.

The details about the development and comparison between the remote signal and microcontroller out put will be discussed in this paper. This facility is now regularly being used during ADITYA shots.

INTRODUCTION

Video recording of Aditya machine during plasma shots is very important task. Recording these picture is very useful in case of any accident or fault for post operational analysis. We used to record these pictures using a VCR and operating it manually. However, manual operation has its own drawbacks. If the operator misses to start recording the entire data are lost. Therefore we have automated this operation by programming a microcontroller. The detail of the work is presented below.

Principle & Experimental set-up

The block diagram of the experimental set –up is shown Figure. IR Remote control transmits 16 - bit (modulated with 38KHz) function code. This device generates recording and stop code For manual recording we uses an IR remote controller. This remote controller follows IrDA protocol. It generates 16 – bit code for recording and 16 – bit code for stop function. We have used a programmable microcontroller (AT89C52) to generate these codes and programmable delay (32 Sec.). The timing sequence is shown in figure. An external trigger from APPS comes at t = 0. The recording code start immediately and start recording the machine status at t = start. The recording time is programmable. We are at present recording for 32 Sec. The recording stop at t = stop as shown in Figure. Recording code of manual remote(Figure)is nicely reproduce the code generated by microcontroller AT89C52 (Figure). Stop code of manual remote(Figure)is nicely reproduce the code generated by microcontroller (Figure).This codes are modulated with 38KHz clock is shown in Figure.
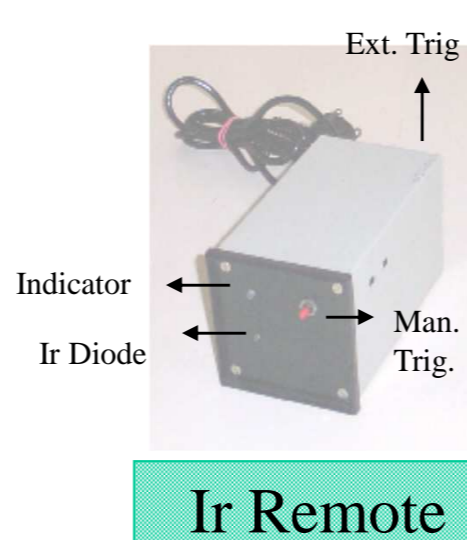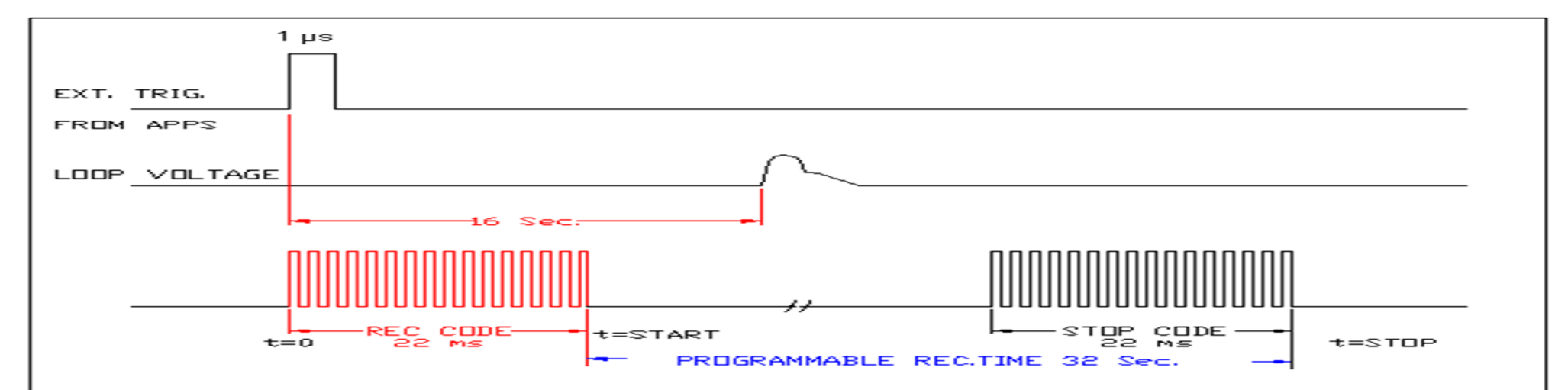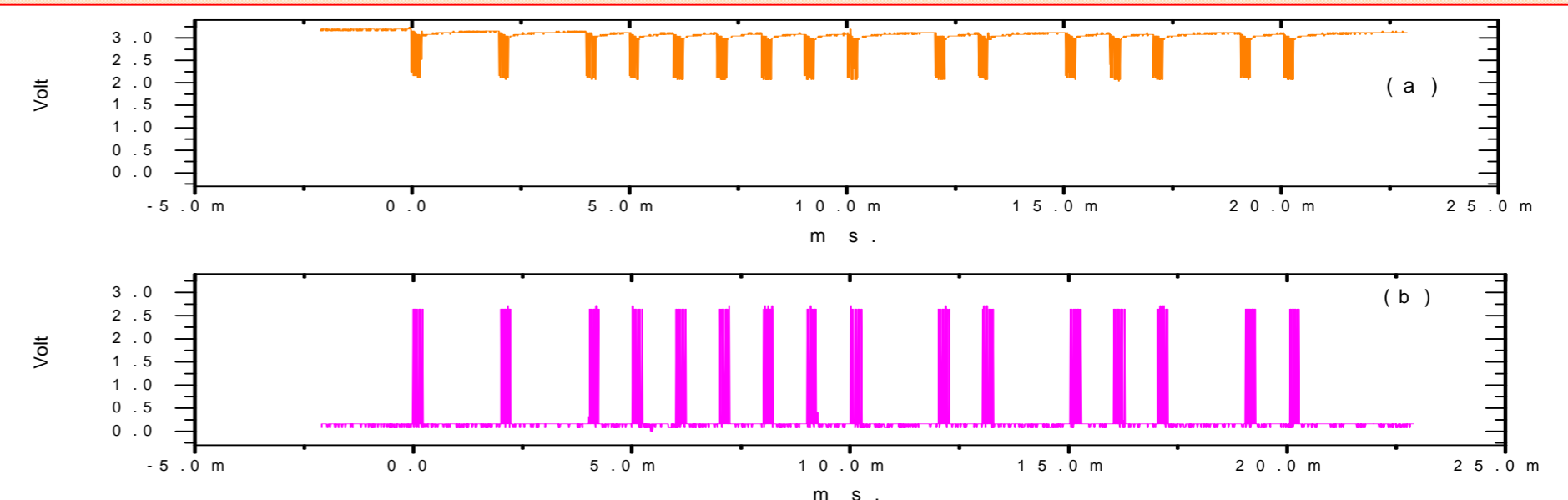
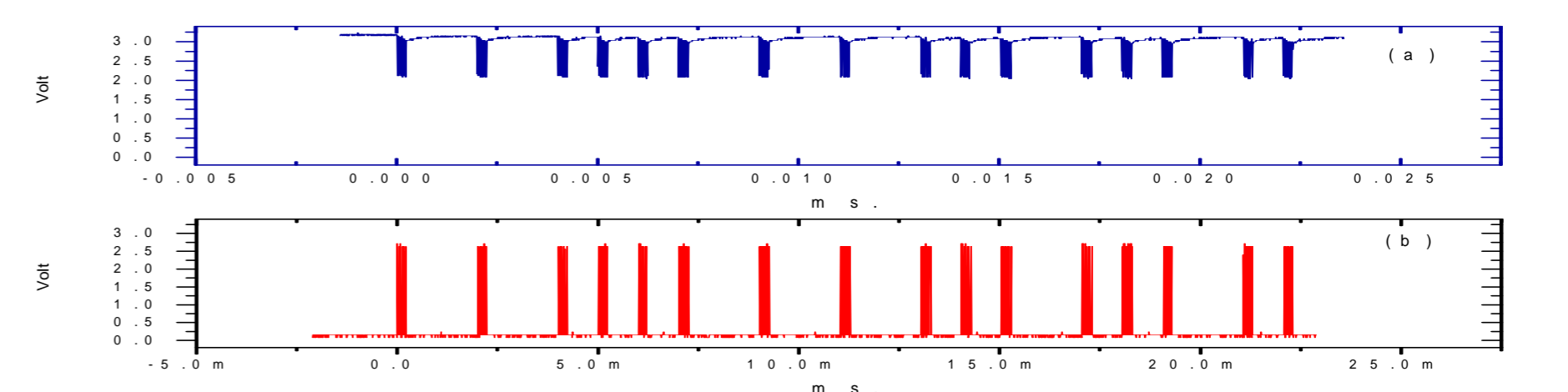## BLOCK DIAGRAM OF CODE GENERATOR
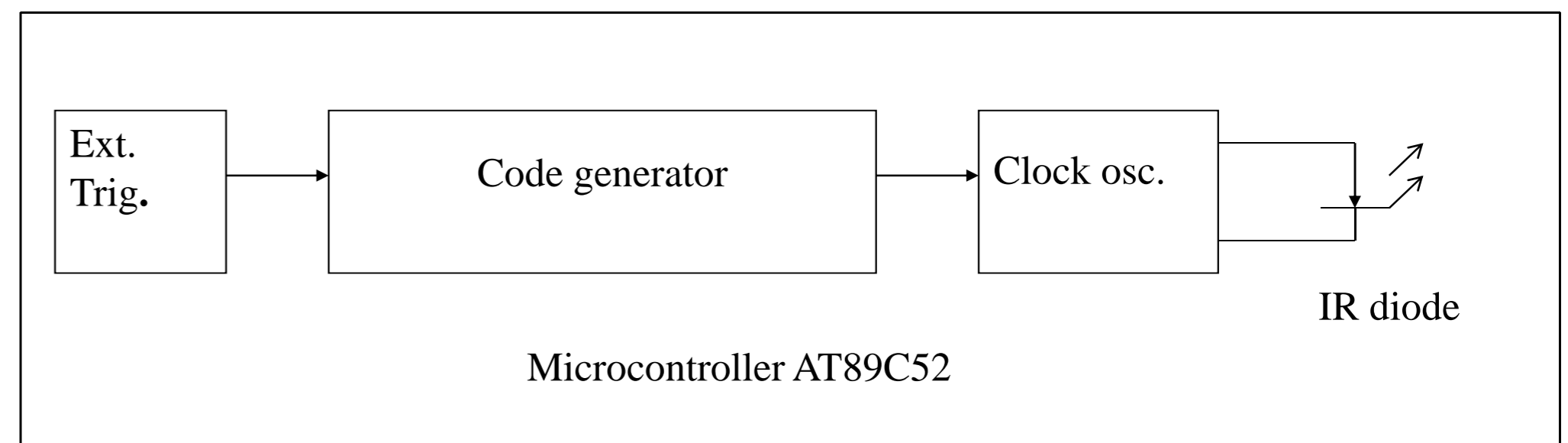
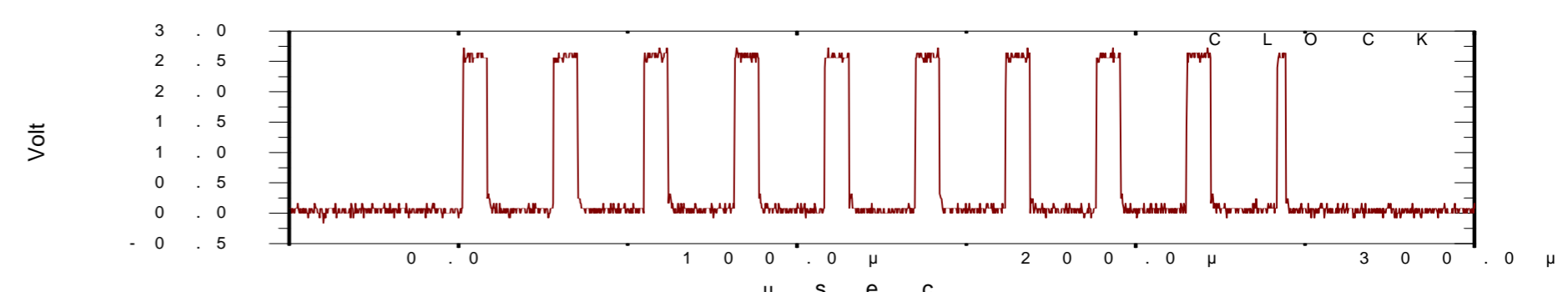

TIMING DIAGRAM

RESULTS

Comparison of recording code (a) out put of manual remote and (b) output microcontroller AT89C52.
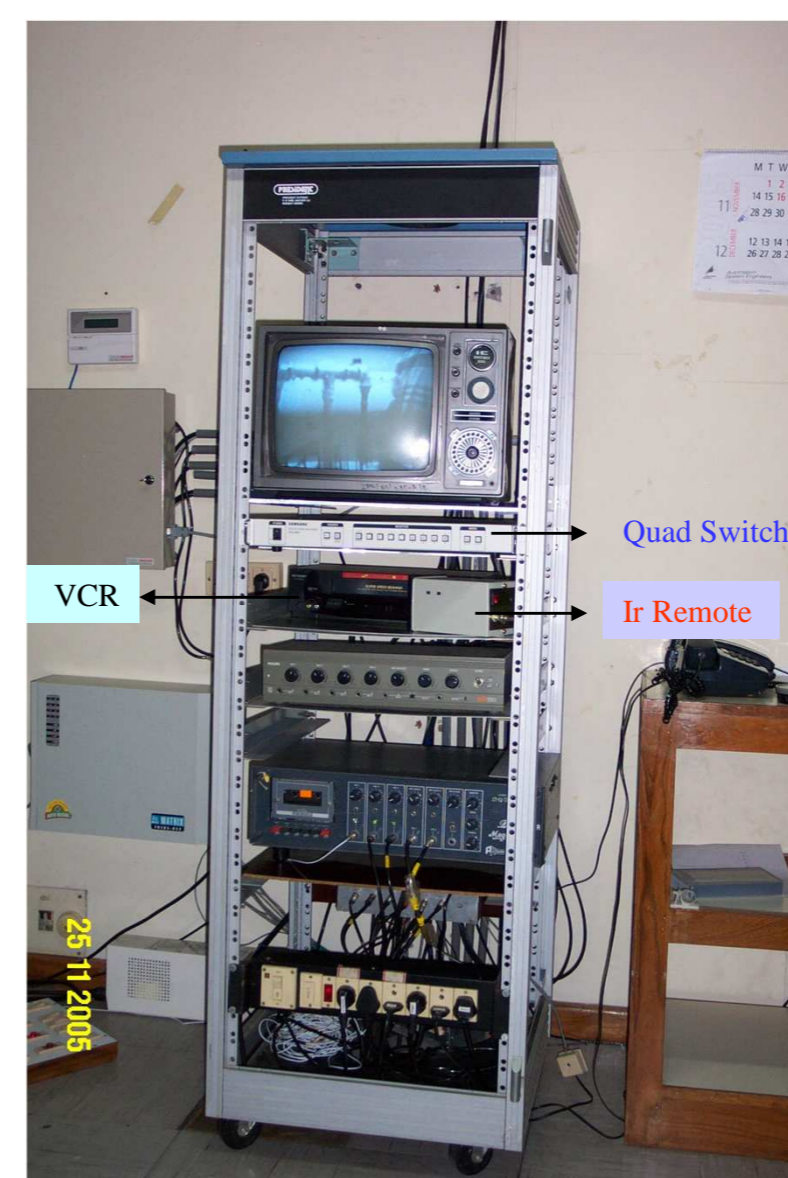

Comparison of stop code (a) out put of manual remote and (b) output microcontroller AT89C52

Clock of code modulation

Conclusion

A system using microcontroller AT89C52 has been developed for automatic video recording of Aditya machine during plasma shots. The system is being used in Aditya regularly without any problem. This has helped us to avoid any human error during recording.

Ir Remote

Recording object