TELESCOPE AUTOMATION AND CONTROL

1.04M aperture optical telescope named as Sampurnanand has been installed as the one of the main observing facility in optical domain at, Aryabhatta Research Institute of Observational Sciences Manora Peak, Nainital. The 104-cm, f/13 telescope produce a field of around 45 arcmin with corrector at the cassegrain end. the total research output of the 104cm Sampurnanand Telescope reaches nearly 364 scientific publications in different refereed journals and 45 PhD Thesis. The telescope is covered by a spherical dome with a slit opening for observation. The dome and the telescope are rotated and moved accordingly in order to take observations. This paper presents the work on the control system and movement control of the telescope using PIC18F4431 microcontroller of 8051 family along with Gurley Models A19 Absolute Rotary Encoder which had resolution up to 18 bit and gave an SSI output.The code was compiled and run using ICD-3 debugger and MPLABX IDE v 5.25 and xc8 compiler.A pair of SPDT relay's was used to change the direction of a DC motor.The raw data as acquired

from the data acquisition software is transfered to the another PC meant for archiving the 40-inch

data. Transfer is done through ftp or windows PC sharing facility. It's faster and more accurate than any resolver-based system. This paper presents the use of mentioned electronic components to control Sampurnanand Optical Telescope, ARIES, Nainital.