# DISTRIBUTED DATA ACQUISITION SYSTEM FOR PACHMARHI ARRAY OF ČERENKOV TELESCOPES

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Pachmarhi Array of Čerenkov Telescopes (PACT) consists of a 5×5 array of Čerenkov telescopes deployed over an area of 100 m × 80 m, in the form of a rectangular matrix. The experiment is based on atmospheric Čerenkov technique using wavefront sampling technique. Each telescope consists of 7 parabolic mirrors mounted para-axially on an equatorial mount. At the focus of each mirror a fast phototube is mounted. In this experiment a large number of parameters have to be measured and recorded from each of the 175 phototubes in the shortest possible time. Further, the counting rates from each phototube as well as the analog sum of the 7 phototubes from each telescope (royal sum) need to be monitored at regular intervals during the run. In view of the complexity of the system, the entire array is divided into four smaller sectors each of which is handled by an independent field signal processing centre (FSPC) housed in a control room that collects, processes and records information from nearby six telescopes that belong to that sector. The distributed data acquisition system (DDAS) developed for the purpose consists of stand-alone sector data acquisition system (SDAS) in each of the four FSPC's and a master data acquisition system (MDAS). MDAS running in the master signal processing centre (MSPC) records data from each of the 25 telescopes. The data acquisition and monitoring PCs (SDAS and MDAS) are networked through LAN. The entire real time software for DDAS is developed in C under LINUX environment. Most of the hardware in DDAS are designed and fabricated in-house. The design features and the performance of the entire system will be presented.