

PROJECT UNIT: TECHNICAL CHARACTERISTICS AND PROSPECTS. Ya. O. Romanyuk¹, V. V. Kleshchynok², B. E. Zhilyaev¹, V. G. Godunova³, O. O. Svyatogorov¹, I. V. Lukyanyk², V. M. Reshetnyk², V. M. Ivchenko², I. A. Verlyuk³, O. V. Sergeev³, M. V. Andreev³, N. V. Karpov³, V. O. Danylevsky², V. P. Lapchuk², M. I. Buromsky², ¹Main Astronomical Observatory, NAS of Ukraine, 27 Zabolotnoho, 03680 Kiev, Ukraine, ²Kyiv Shevchenko National University, 2 Glushkov Prosp., Build. 1, 03680 Kyiv, Ukraine, iluk@observ.univ.kiev.ua, ³International Centre for Astronomical, Medical and Ecological Research, Terskol settlement, Kabardino-Balkaria, 361605, Russia

Ukrainian Synchronous Network of Internet Telescopes (UNIT) is a joint project of the three scientific organizations: the Main Astronomical Observatory of NASU, the Kyiv Taras Shevchenko National University, and the International Center for Astronomical, Medical and Ecological Research. The UNIT project is based on using small robotic telescopes which are located in Ukraine and in the Northern Caucasus (the Terskol Observatory). The remote telescopes are operated through Internet from a PC at any location. A key purpose of the project is twofold: to renew the observational facilities and in that way to enhance the research area, and to educate and train young people with the view of getting them involved in scientific carrier fields.

Features. Telescope Celestron CGE-1400: 14" Schmidt-Cassegrain telescope; Observatory-class computerized German equatorial mount; Schmidt-Cassegrain mechanism that moves the primary mirror to adjust focus is supported by two pre-loaded ball bearings, minimizing the "mirror flop" typical of bushing focus mechanisms; Celestron's standard StarBright coatings; 9x50 finderscope to help accurately find objects; Cold rolled carbon steel tripod legs provide extremely stable platform; Star diagonal provides more comfortable viewing position when observing objects that are high in the sky; Aperture - 356 mm; Focal length - 3910 mm; Limiting stellar magnitude - 15.3; Resolution - 0.39 arc seconds; Angular field of view - 0.51°. Telescope NexStar11 GPS: 11" Schmidt-Cassegrain telescope; Observatory-class computerized equatorial mount; Aperture - 280 mm; Focal length - 2800 mm; Limiting stellar magnitude - 14.7; Resolution - 0.42 arc seconds; Angular field of view - 0.6. CCD Rolera-MGi: Array Size - 512 x 512 pixels; Pixel size - 16µm x 16µm pixel size; CCD Sensitivity - 3500 - 1000 Å. CCD APOGEE Alta E47+: Array Size - 1024 x 1024 pixels; Pixel size - 13µm x 13µm; CCD Sensitivity - 3600 - 9200 Å. GPS: Acutime 2000.

The description of automatic exchange and data storage system for network of the Internet-telescopes of UNIT. In general the system consists of telescope with operating complex and the removed information centre. The operating complex includes a set of program modules and operating

devices. The information centre is realized on the basis of web-server, ftp-server and relational database management system. It is intended for the authorized access of users to UNIT network, for registration of observational applications and for receiving and storage of the observational data obtained from telescopes of the network, for communication between users, for displaying of telescopes status during their work. The opportunity for an inclusion of programs for automatic data processing in structure of information centre is provided.

UNIT has a mission to work on around a dozen science programs:

- the activity of comets;
- searching for new asteroids, detection of NEOs, space debris;
- wide range of observing programs including the fast variability in light and spectra from the various types of variable stars and centers of active galaxies;
- the remotely operated long-term Stellar Flare Monitor;
- follow-up observations of GRB optical-counterparts;
- searching for newly discovered Novae and Supernovae, etc.

The network of internet-telescopes is being created in Ukraine with the using of new information technologies. Purpose of project is the creation of astronomic instruments that would give opportunity of solving of wide circle of the observational tasks for distant users. Such possibilities allow using telescopes network in educational process in schools, universities and other educational establishments, where astronomy is studied. Conception of its application in an educational process in schools and universities, and also for the wide circle of astronomy amateurs is set out. Also we present the site of project of UNIT (<http://unit.univ.kiev.ua>), where the popular scientific articles are placed from the various sections of astronomy. The articles were written by leading specialists from these sections. The supplemental information from astronomy, cycle of computer laboratory works for skilled amateurs and students, instruction and recommendation for astronomic researches with the use of modern observational technique is also placed on site.