Scientific work

№	Project name	Goals and objectives of the project
1.	Creation of a land cadastre information base based on the installation of sensory boundary markers on a plot of land.	Purpose of the project: Currently, there are practically no boundary signs for land plots, with the exception of the presence of the state border. In this regard, such negative processes as thousands of violations of land legislation, various disputes, the uncertainty of land information and distrust of it, and the arbitrary seizure of land by land users continue. Currently, our republic uses the land fund of Uzbekistan, consisting of 44.9 million hectares, divided into 6.6 million land plots and lands of the state reserve. Of course, land plots are owned by land users, their total number is about 6 million. In the world experience, there has not yet been the most experienced ground control solution. A practical solution to this innovative idea is created for the first time on the example of Uzbekistan. Project content: Based on the installation of sensor boundary marks, it will be possible to organize land use for maintaining a land cadastre based on accurate, reliable sources. It has been noted that the cost of installing border markers is 2-3 times more effective than the traditional situation.

| 2. | Improvement of the land information system in the administrative district based on digital technologies | the methodology of development of state land cadastre information was improved, the methodology of development of state land cadastre information was improved, taking into account sources of information such as "land contour", "land plot", "border mark". This proposal serves to base the information on the land cadastre information system at the level of the land parcel;

As a source of primary land cadastral information, the "Registration of Areas in Sections of Land Contours" was developed in a creative way. As a result, the accuracy of the land cadastre information developed at the scale of the land plot is ensured;

a proposal has been developed for the installation of sensory boundary markers in the land plot, neighborhood assembly and administrative district territories. As a result of this, it became possible to fully ensure the reliability, truthfulness and transparency of land cadastral information formed at the level of land contour and land plot;

A prospective program of technical modernization of land cadastral information supply until 2030 has been developed in the Republic of Uzbekistan. This Program is based on the fact that the information recorded in the land cadastral documents of more than 6 million land users and about 7 million land plots attached to them serves to reduce the impact of the human factor as much as possible;

Land cadastral information was developed on the basis of the "Yeravtobank" electronic program, "Installation of border marks on land plots with cadastral number on objects", "Model and algorithm of creative approaches in determining the average value of soil credit scores" and "New land". As a result, the land fund has increased the possibility of creating a land balance at the level of the community, district (city), region and republic from the level of land contours and land plots. |

3.	Improvement of technologies for creating the information base of the cadastre of buildings and structures	Scientific research on the research work was carried out on the basis of surveying real estate objects located in Qibray district of Tashkent region, including Boston neighborhood. As a result of the research, problems were identified in the formation of reliable information about land plots. In order to eliminate such problems, by increasing the level of accuracy of the characteristic points of land plots based on the satellite method, proposals have been developed for the formation of reliable information of the cadastre of buildings and structures. In the course of the research, work was carried out to determine the characteristic points of complex-shaped plots of land located in the territory of a particular neighborhood using modern technologies. As a result of the research, a scientific methodological recommendation entitled "Improving the methods of developing reliable information in maintaining the cadastre of buildings and structures" was developed. As a result, the mean square error in determining the characteristic points of land plots was reduced from 0.10 meters to 0.015 meters; During the research, the method of determining the internal areas of residential facilities was studied. The study was carried out using a laser dalnomer. Factors that may cause errors during the use of a laser odometer in the implementation of measurement work have been studied. In order to eliminate the negative consequences of the error, the method of measuring the internal areas of buildings and structures using a laser dalnomer has been improved. As a result of the research, a scientific methodological recommendation entitled "Improving the methods of developing reliable information in maintaining the cadastre of buildings and structures" was developed. As a result, the accuracy of area measurement has been increased and the root mean square error has been reduced; In 2016-2020, analytical work was carried out in camera conditions, it was observed that the number of buildings and structures and the amount of space occupied by them changed regularly. It was determined that these changes were made mainly at the expense of newly constructed buildings and structures. In particular, the author recognized the necessity of timely registration of such objects. Based on this goal, the method of identification and analysis of unregistered objects has been improved in the process of monitoring cadastral objects of buildings and structures in camera conditions using the comparison method. As a result of the conducted scientific research, a scientific methodological recommendation entitled "Improving the method of comparison in the development of information on the cadastre of buildings and structures" was developed. As a result, the mechanism for quickly identifying property tax objects and generating information has been improved.