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## Feasibility Study and Technological Systems of Project of the Model of the Transition to the Knowledge Economy

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**Abstract:** *The article summarises the brief description of research work prepared for the explanation of the content of PhD dissertation work and FAP 01799 Useful Model. Research work discusses the results of Feasibility study and the components of software & hardware systems of "Developing employee skills for the modern economy by assessing employee knowledge at the turnstiles" project of the model of the transition to the knowledge economy. The article comprises the description of the economic feasibility of the model, technological working principles and components of model system mechanisms. G-code command syntax, N commands, G commands, X commands, Y commands, Z commands, F commands, S commands, T commands, M commands are described. I and J coordinate descriptions used in the commands are given.*

**Keywords:** *Software, model of transition, G-code command syntax, N commands, G commands, X commands, Y commands, Z commands, F commands, S commands, T commands, M commands.*

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### Introduction

Our research study shows the necessity and importance of solving the issue of fair evaluation and continuous improvement of the professional knowledge, skills and skills of employees in state bodies, state-owned enterprises and organizations, as well as educational institutions. The research is dedicated to practical, technological solutions and developments. The research admits that it is not a secret to anyone that our republic is a third-world country. The research suggests implementing systematic Knowledge, Qualification and skills monitoring to be included in our today's current agenda as one of the necessary practical measures to be taken, in order for our country to become among the second-world countries such as France, South Korea, Germany and Japan in the near future (2040-2050). As a practical technological solution and development of solving the problem of the dissertation, the Turnstile (Automatic Gate) devices serve as a component part of the Automated Control Point in the entrance halls of State bodies,

State-owned enterprises and organizations, and educational institutions. The research offers and describes the integration system of Auto Tester devices that evaluate the indicators. In the form of a feasibility assessment, a mathematical formula model, and a sample solution on a demo platform, research work proves how wise the decision is to establish this system at the state level in the Republic of Uzbekistan and how vital and basic it is for the development of our republic, like water and air. Also, the research sheds light on how the system will change economy after the project is widely used at the next stage, after the society adapts to the system, and the practice of applying rewards and fines will be introduced.

**Subjects of the inquiry:** Conditions of development of macroeconomics and microeconomics of the Republic of Uzbekistan in the world market; conditions of economic development of state-owned enterprises-organizations; Software and hardware systems of "Developing employee skills for the modern economy by assessing employee knowledge at the turnstiles" project of the model of the transition to the knowledge economy

**Aim of the inquiry:** clarifying the structure and principles of operation of software and devices for the "Developing skills of employees for modern economy by assessing the knowledge of employees at the entrance halls of automated controlled gates(turnstiles)" project for abandoning the economy of corruption ,by providing the transition to the knowledge economy, which is the basis of the modern market economy ; showing the nature of the project, the need for its implementation, the value and importance

**Method of inquiry:** The process of working in a systematic way was chosen as a robust method in the Current Paper. In the research, the methods of analysis and synthesis, the method of the unity of logic and past experience, historical value data, the method of scientific abstraction, and the view of the opponent's critical thinking method were used.

**The results achieved and their novelty:** The essence of a new model of economic development, transition to a knowledge economy expressed by a logically based mathematical formula was revealed. The structure and operation principles of the software and devices of the new economic model and the automatic mechanism of its implementation system were shown. In a new approach to traditional automatic gate entrance checkpoints, tester devices have been integrated.

**Practical value:** The practical significance of the system installation is that after the system is installed, the process of transition to the economy of knowledge, which is currently the "bottleneck rate", the most lacking condition for the development of the macro-economy and micro-economy of Uzbekistan, will begin. As a result, there will be a National Economy of Uzbekistan, where young and old will have well-suited job and salaries, a social justice system leading to development, and the value of GDP Per Capita will increase continuously.

**Degree of embed and economical effectivity:** Each and every organization where the system is installed will move to the knowledge economy, and become competitive in the market economy of the modern world by increasing the export of high-value, high-knowledge capacity products.

**Sphere of usage:** It is a key tool that is several times more effective than the current KPI system in order to dramatically improve the personnel management system in state-owned enterprises and organizations and achieve the above-mentioned economic results.

**The necessity of the project:**

- Implementation of this project guarantees long-term competitiveness of state-owned enterprises-organizations in the World market economy. After the full implementation of this system, within 10 years, the development of the Macroeconomy of Uzbekistan is expected to increase dramatically due to the increase in the qualification level of personnel.

As you know, the main share of the world economy of the 21st century corresponds to knowledge-intensive production and service provision. It is a duty of today's generation to create a foundation for entering the world's knowledge-intensive production and service market by the introduction of this system in the Republic of Uzbekistan on time.

- Timely implementation of this System in the territories of the Republic of Uzbekistan is a necessary condition for our republic to take a deserved place in the world community in the near future.
- It is necessary to create a real chain structure that connects the education system and the production and service delivery system. The system proposed in the dissertation research serves this purpose.
- From a neutral point of view (without deceiving ourselves), it is clear from all fronts that our anti-corruption system is not working in practice. At this point, we should mention one of the most correct definitions of corruption:
- Corruption is the enrichment of individuals and groups of individuals that leads to the impoverishment of the civil society of the Republic.
- The root of corruption goes back to the worldview and concepts formed in the minds of the public and citizens as a result of many years of wrong approaches to work, education and property in the Republic. In other words, choosing the right direction and decision always means that the government of the republic of Uzbekistan should require industry knowledge on all aspects from the society by the proposed system in our research. The system proposed in the dissertation study is a reflection of this direction and decision in real life.
- We will prove our point with specific events and examples: In the past generation, in the Uzbek SSR, the concept of personal property was removed from people's minds and everything was declared to be collective property. As a result, the team formed around the party, which fully (almost) correctly understood this issue, achieved considerable success. When the idea moved away from the center in space and time, it weakened and became ineffective. The main weakness of the ideology of the USSR was precisely the lack of ownership for the property. In the first 30 years of the transition to a market economy after the dissolution of the Uzbek SSR, it was difficult to draw a clear line between private property and collective property, the national interests of the people of the Republic. The example of the activity of our auto industry during this period also repeated the fate of the USSR and served as a basis for drawing appropriate conclusions. This situation is repeated in our other sectors too.

So we can conclude that we need to speed up the process of privatization. Then we will achieve the desired result in a short period of time, and the general purchase of the Republic will be covered by taxes, and a general fund will be formed for the surplus.<sup>[1]</sup> Of course, this is correct, but if we fully privatize the main objects, it will be approached by the funds purchased from the 2nd party as private property. As a result, when money is needed, private properties are sold regardless of who buys them. Funds are always found in giant countries like China, Russia and India, which are our neighbors. Over time, the level of dependence increases. And the government of the republic will become a puppet in the hands of these circles and eventually we may lose our independence. So, in order to make the transition to a 100% market economy like the United States, we need to gather power like the United States. This is a difficult task to accomplish in a short period of time. Maintaining a dynamic balance by supporting private ownership while providing the method of the national economy of the Republic will be achieved Permanently\* by monitoring the specialty Knowledge, Qualification & Skills level of the Employees highlighted in the practical projects and developments described in these Dissertation studies. \*(not only for 5-10 years)

In the past 30 years, working for the boss in a lie, treating the state property in an ownerless manner and excessive censorship under the guise of formalism has been observed, and the support that sees the need to create the system (specified in this Research work) for the benefit of the Republic is not provided. Instead, there were many cases of excuses for not doing it. Recruitment to state and large facilities was carried out depending on the amount of "the amount of bribe" in most industries. Those who work in these jobs rarely ask themselves what good news they have introduced in their work. As a result, we have become a state who is importing (almost) replacements and obsolete equipment, again and again, every 10-20 years. China began to call Uzbekistan as a small market, and Russia called Uzbekistan as a plantation of labor resources. India began to see Uzbekistan as an underpowered country as its own smaller administrative units and provinces.

In the modern world, Natural question arises, personal as biological entity owns intellectual property, specialty knowledge and qualification, but are there necessary conditions created to convert these into income in a timely manner in the society? The answer defines the export share of knowledge-intense products and services to the world market by the country. Due to the lack of the reforms on the above specified criteria in our republic, Uzbekistan holds 177 th place among 208 states on GDP per Capita.<sup>[2]</sup> So, we need the new system, the new mechanism to achieve above specified goals. Now, we begin the description of technological elements of the new mechanism, knowledge testers integrated automatic control gates.

Components of the project implementation infrastructure

- One set of the turnstile in the project includes 1 gate controlled by an ID card, 10 test devices. The set has the ability to pass 10 people through the turnstile gate in 1 minute with this method. According to the results of the analysis, 1 set will be installed in institutions with up to 100 employees, and 2 sets in organizations with up to 200 employees. In this regard, 1 set is installed for every 100 employees.
- As a result, there will be no queuing and each employee is given 1 minute to answer 1 question.<sup>[3]</sup>

### Technical solution sample details

Now we discuss the functionality of the system working element of the checkpoint gate, the functionality of the technical solution, that is, opening or closing, alarm and light warning functions, how they appear in the PLC language and directly in the CNC emulator in the form of G-Code and we explain the software in a brief detail.

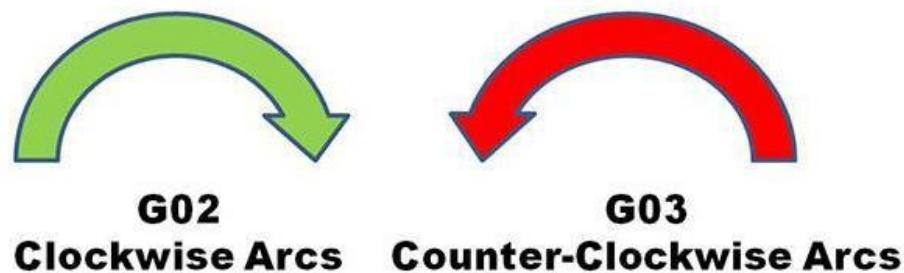
**G-code is a variation of an alphanumeric pattern.** A standard G-code command conforms to the following logic:

N## G## X## Y## Z## F## S## T## M##

- N is the line number the program is in and it ensures that the program follows a logical order.
- G indicates a motion using the Cartesian coordinates that follow. There are many G commands (hence the name G-code) and they vary from machine to machine, so make sure to check your controller manual. Nevertheless, there are three basic types of G-codes:
- G00 is used for rapid, non-cutting movements.
- G01 is used for linear movements at a programmed feed speed, usually used to cut material.
- G02 is used for circular movements at a feed speed.

X Y Z commands are used to define X, Y, and Z coordinates.

- F stands for feed rate, which is basically how fast the machine should move from point to point. It's usually expressed in inches/minute or mm/minute.
- S is spindle speed, which determines how fast the spindle should rotate in rotations per minute (rpm).
- T is used for tool selection; most CNC mills now have 10 or more tools ready to use on the machine.
- M are miscellaneous functions to turn things on and off, flood coolant, air blast, close machine doors, and more. Every machine has different M commands, so make sure to read your machine's manual carefully.
- I and J are used for arcs. The X and Y coordinates of where the arc ends are needed as well as the X and Y distances from the arc start point to the arc center point.<sup>[4]</sup>



**Figure 1.** [PLC G-Code commands]

Moreover, syntax elements of PLC programming languages like Ladder logic, Functional block diagram, Diagram of series functions, Structured text, List of instructions<sup>[5]</sup> have been introduced and used.

## Conclusion

The practical results of the research are as follows:

A system that is several times more effective than the current traditional Key Performance Indicators(KPI) system was presented and introduced based on all aspects.

As a key conclusion , the following are established:

State Economy should orient and be based on export surplus. The value required for the export of Uzbekistan and the import by foreign markets should be created in knowledge-intense production and service fields in the modern world. Good government should be able to provide employment rate of own citizens to the level higher than 70-80 %. The annual Inflation rate must be maintained at a very low level less than 5%. High-paid real job offers in engineering and high-tech industry should always be available in the territory of the state. These factors indicate the health state of the government and economy, otherwise, something is wrong and measures should be taken to fix it. The practical solution for Uzbekistan to stand in the modern knowledge economy of the world and achieve the above-mentioned goals is the installation of the system introduced by this dissertation work and useful model patent FAP 01799.

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