

# Automation of Accounting and Control of the Use of Working Time in an Engineering Company

Marina Lovcheva

Technoservisstroy Ltd.,  
Moscow, Russia  
e-mail: [lovchevamv@kc-lab.com](mailto:lovchevamv@kc-lab.com)

Ekaterina Gurova

State University of Management  
Moscow, Russia  
e-mail: [nadkate2001@mail.ru](mailto:nadkate2001@mail.ru)

## ABSTRACT

Automated accounting of working hours and control of web resources visited by employees during working hours were built into the personnel motivation system and were used as a basis for employee bonuses, making them more understandable and transparent for both staff and management. The article considers the experience of implementing the automated work time accounting system for personnel CrocoTime for an engineering company.

## Keywords

Personnel, working hours, automated work time control system, labor efficiency, web resources, computer time, reporting table, reporting, personnel monitoring.

## 1. INTRODUCTION

Analysts of the FBK audit and consulting company estimated that the loss of the Russian economy from employee visits to social networks during working hours is from 281.7 to 311.5 billion rubles a year, i.e., about \$ 10 billion. These losses "... are comparable with the state's expenditures on housing, culture, cinematography and the media, with budget spending on agriculture and fishing. They are also comparable with the annual allocations for transport support (297.8 billion rubles) or with half of the federal budget expenditures on education (293.1 billion rubles). And this is only a rough estimate of the damage from misuse of working time, but it allows us to judge the scale of losses," - says Igor Nikolaev, director of the FBK strategic analysis institute. Experts FBK in their calculations also took into account the time that is required for the employee to return to work and enter again into a productive working mode after a break on the social network.

Compared to other countries, Russian figures do not look that big: for example, British companies lose more than \$ 20 billion a year, and the US - more than \$ 600 billion annually. Against the backdrop of such realities, the demand for time tracking systems and monitoring of its use or, in a different way, personnel monitoring systems has grown substantially. There are already a lot of software products and IT solutions for monitoring the activity of personnel working at the computer: Kickidler, StaffCop, LanAgent, Stakhanovets, CrocoTime, BitCop, WorkTime Monitor, Yaware, Mipko Employee Monitor, SearchInform, NeoSpy, etc. All the above programs can be divided into three main types.

*The first* (for example, Kickidler) – makes the main emphasis on recording the actions of the personnel at the computer on video, online surveillance and violation control. The unconditional advantage of this approach is the fact that it is impossible to hide from the video negative - to store video, you need a sufficient disk space (according to the manufacturer, from 190 MB to 1.2 GB per day per employee depending on what he is directly engaged in the workplace), as well as legal restrictions on the use of video surveillance

for personnel and the moral pressure that many people experience, being all the time under the "allseeing eye" of a video camera.

*Software products of the second group* (for example, StaffCop, LanAgent, Stakhanovets) - collect the maximum amount of data about user actions (letters, files, messages) and suggest using reports for their analysis. Positive - such a company is that by searching for received and sent letters, messages, etc., you can find possible violations of the employee. It is very difficult to analyze a large amount of information. In addition, it is not clear who should be engaged in this - employees of the internal security service or specially hired personnel, among which there may also be just slob and deliberate insiders. The third group is the work accounting system (for example, CrocoTime, BitCop, WorkTime Monitor, Yaware), which save a minimum of data: only visited sites and running programs. The program automatically divides activity into productive, unproductive, neutral, and generates reporting, where the employer can see on what resources his employees spent time. Plus, these systems are distinguished in their simplicity and small amount of data for storage and transmission. Since confidential information is not transmitted, the manager cannot be afraid for its safety. Although there are disadvantages, for example, that these systems cannot give an answer, what exactly a person did in this or that program or on the site.

Therefore, it is obvious that the choice of the software product required for personnel monitoring depends on many factors, among which we can mention:

- the price of the product,
- the complexity of its installation and operation,
- management tasks that should help to solve the application of this program,
- legal restrictions on the use of the software product in certain operating conditions of the company,
- the state of discipline in the team,
- number of employees in the company,
- the nature of work and the number of employees whose labor function is implemented using a computer and is based on its use,
- availability of qualified personnel for administering the software product,
- the quality and informativeness of the reporting generated by the software product for the purposes of analytics and accounting,
- requirements for the conditions and volumes of storage of information collected in the monitoring process, etc.

Having considered all these factors, for the conditions of automation of working time recording and monitoring of the activity of the personnel of a small engineering company, the software product CrocoTime was selected.

Automated accounting of working hours and control of web resources visited by employees during working hours were built into the personnel motivation system and were used as

a basis for employee bonuses, making them more understandable and transparent for both staff and management.

## 2. EXPERIENCE OF IMPLEMENTING THE AUTOMATED WORK TIME ACCOUNTING SYSTEM FOR PERSONNEL CROCOTIME FOR AN ENGINEERING COMPANY

### About the company

The company referred to in this article refers to the field of industrial engineering and specializes in the design of engineering systems and fire protection systems for atypical (unique) buildings and structures. Over 12 years of successful work, the company's specialists have implemented more than 300 projects, including projects for 36 high-rise buildings and structures, 45 sports facilities, 40 oil and gas facilities, 60 industrial buildings, 50 shopping centers and other facilities.

The company employs 25 specialized engineers, 6 project managers who organize work with customers, as well as the company development service and administration (directors of directions).

### Why Crocotime?

The advantage of using CrocoTime in this company was the high speed of monitoring, the absence of complex installation requirements and the ease of operation of the program, competitive price, a lot of positive feedback, and the fact that the program does not slow down the speed of computers. In addition, the program does not make traditional for this area screenshots from the screens of employees. The management of our company and the HR director are convinced that the surveillance of the subordinates via the PC camera and monitoring of correspondence is no longer a control, but paranoia, and they do not accept this approach to the employees of their company categorically. "Control should not distract or irritate the staff, otherwise it will harm, and not help the

business. Responsible and result-giving employees time control will not actually affect," - says the company's general director V. Petrov. But the employer will also take appropriate measures if he or she knows that the workers have hours during their working hours, incriminated by them idly or spent on unproductive distractions.

The company is comfortable that CrocoTime automatically divides the programs and sites with which the employee works, into productive and unproductive (specific for different units), and then considers how much time the employee spent on distraction. If this time is acceptable, management can "sleep peacefully." If not, the system sends an alert to the manager's mail.

The developers of CrocoTime tried to take into account the interests of both the employer and the employee. The system generates a convenient time sheet, clearly shows the load and mode of operation of each employee and unit as a whole, reflects and recruits employees, fixes delays and early departures, allows you to celebrate holidays, sick leave, business trips and holidays, keep records of the use of a working time fund, requirements established by labor legislation.

### How it works?

The program agent is installed on each computer and automatically collects information about which programs and sites the computer owner used. The time of work in each application or on the site is considered by clicking on the keys and mouse clicks. If you do not click for more than 5 minutes, the system will begin to consider the time as "non-computer" (Fig. 1).

The administrator divides the programs and sites visited by employees into "productive" and "unproductive", and this distribution depends on the specifics of the work for each department, and sometimes a particular employee. Fixing the time of work in different types of programs, the system shows how much the employee worked productively, identifies distractions and calculates the share of losses in the total fund of working time for the company as a whole, for each department and for each employee (Fig. 2).

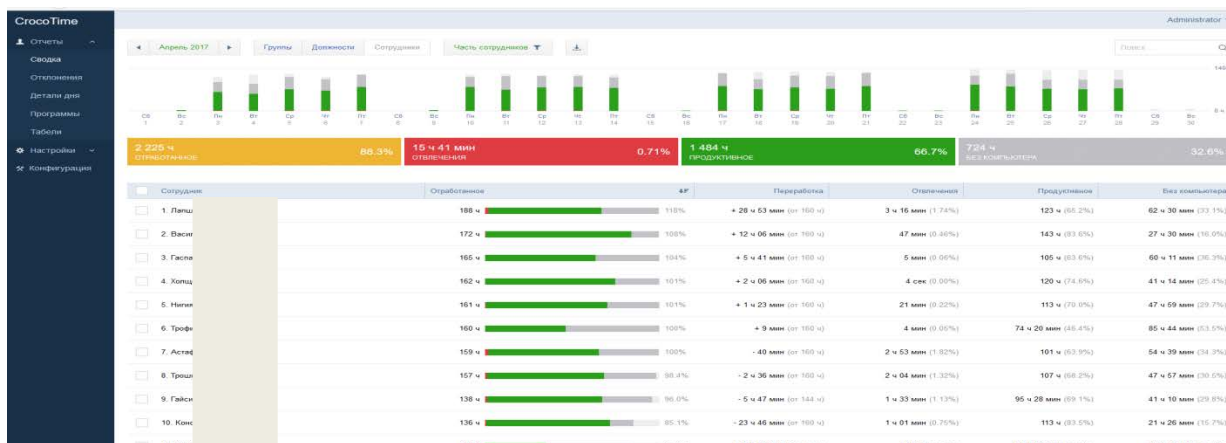


Fig. 1. An example of the interface of the program CrocoTime: the actual time worked by the company's employees, deviations from the operating mode, processing, unproductive losses. You can view the statistics of the company as a whole, each department and each employee.

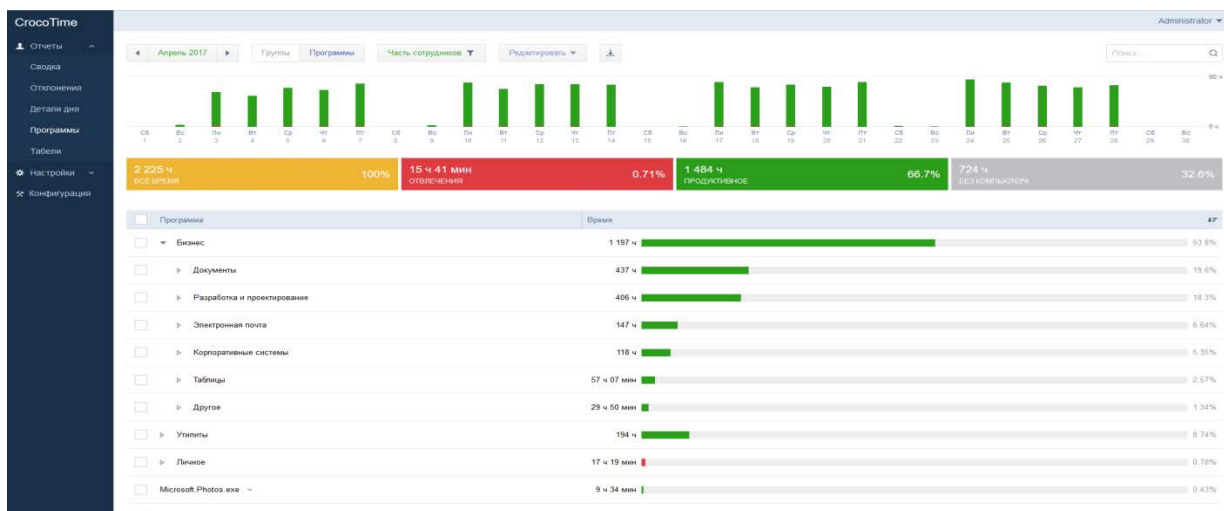


Fig. 2. An example of the interface of the program CrocoTime: it shows the use of various programs and sites by the company's employees.

In the company under consideration, several people from different departments work on each project (project manager, chief engineer of the project, engineer-designer, engineer of normative and technical calculations, manager of commercial service, as well as basic support - IT specialist, office manager, forwarders). So it was important to understand who does what amount of work and for how long

- not only for fair pay, but also for understanding the level of skills of employees working in different projects over similar tasks. TimeTracker will show that two employees who solve similar problems can go to their solution different amounts of time, and allows you to divide the working time of highly qualified personnel into "expensive" and "cheap" (picture №3).



Fig. 3. An example of the interface of the program CrocoTime: Blue stripes are tasks that the employee solved. You can see how long the project team worked on different stages and tasks. You can filter the track by the result or type of the task.

And at the end of the month you can see how much time the employee spent on each project, more equitably distribute the reward for work on different projects, and compare the amount of time spent by specialists of the same profile to perform the same jobs in different projects.

### 3. CHRONOLOGY OF CHANGES AND RESULTS

The program was installed in November 2015.

*In the first days* of using the program, the company's management and personnel service were carried away by a new way of control, every minute a new pool of information about the work of the office came.

*A week later*, an employee was found in the team, who played balloons for 3 hours a day, and an employee who spent 1.5-2 hours on job search sites, and the company assured that it would work long and happily.

As information was accumulated, it was possible to create a list of typical distractions: first place in 90% of cases is occupied by VKontakte and Facebook, on the second - online stores and news. By the way, the developers of CrocoTime have calculated, in the opinion of all their customers, that the average amount of time that employees spend on work is wasted, varies from 15% to 30%. In the company in question, the loss count was started with a significantly more modest figure of 4.25%.

*At the end of the first (test) month* - they learned that there are specialists in the company who are no longer working during working hours than they are working. We talked with them, explained "what is good and what is bad", they became more rigidly controlled and loaded. The results began to improve. With one employee - they said goodbye, not having found understanding.

*Three months later*, the interest of the management towards the total control of the employees was slightly weakened,

they got used to the program and began to master it already as a tool for managing the process and personnel. For example, a design engineer is confident that he cannot cope and needs an assistant. The project manager will look at the statistics of the work for 1-2 months.

If, in addition to his "core" programs, he worked a lot with technical task, this may mean that he did not do his job and the reason for the "blockage" is that the technical tasks are not sufficiently detailed and the engineer often has to apply for additional information or to modify earlier made work on the specified data. We are reviewing the functional of the employee.

*Another example.* The regulatory and technical department hands over all projects on time. In itself, this is good, but with the help of the system of accounting and analysis of working time it became known that of the 10 engineers of normative and technical calculations, 80% of tasks in projects are made by five employees. Why does the rest of

the department work less efficiently? They began to find out the reasons, redistribute the burden, improve the organization of labor, improve the skills of the laggards.

Also it should be noted that with the implementation of the program, the Chief Project Engineer (GIP) no longer needed to control what exactly employees are currently engaged in, distracting them from designing. The information he needed became available online around the clock and without the need to request it from employees. A clear understanding of who worked for how long, increased the level of employees' satisfaction with wages and reduced the risks of conflicts and layoffs.

With each subsequent month of using the CrocoTime system, unproductive losses (social networks, personal mail, etc.) became less and less, now they make up 0.71% of the total worked time for the whole team, and started with 4.25%. The reduction is almost 7 times (Fig. 4).

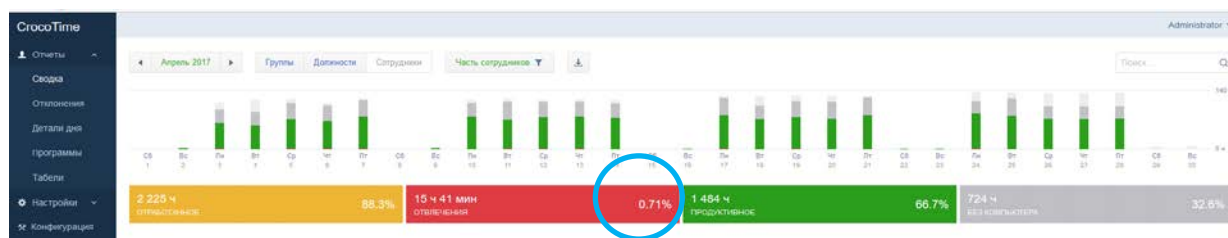


Fig. 4. An example of the interface of the program CrocoTime: the share of distractions for the month (April 2017). Data for the whole company.

*A year later*, we knew exactly how to spend the staff time to get more profit.

- Comparing the indicators taken into account by the system for the year, we received exhaustive information about the work of the company's personnel in the projects;
- Seasonality in the productivity of the work of staff became clear;
- Reserves of time and labor;
- The cost of work for each project and for each stage of the project has been calculated;
- The contribution of each employee to the key processes of the company's business processes is determined;
- It became clear which tasks are strategically important and profitable for the company, in order to devote maximum efforts and time to them;
- The general decision of the employee and the employer to use the time tracking system has raised the level of mutual trust and helps to avoid work and conflict;
- Increased the level of customer confidence in our company through more accurate reports on the resources spent on the work.

#### 4. CONCLUSION

The company is actively developing and in connection with the expansion of the geography of work it plans to create remote workplaces for account managers and design engineers in regions of commercial interest to the company. The transition to the use of the labor of distance workers without taking into account the costs of working time is not effective, because not all remote employees use working time as productively as they could use it, working in the office, under the supervision of the head.

Therefore, the company plans to use the system of personnel time recording and gently monitor the employees' labor activity, not for the purpose of total control, but for the purpose of more efficient organization of work, even load

distribution in projects, maximum use of personnel skills and fair remuneration based on labor results.

#### REFERENCES

- [1] A. Lebedev, M. Lovcheva, «Automated control of the use of working time and the system of bonuses for personnel by KPI's», Normalization and payment for motor vehicles (No. 12), pp.28-36, 2016.
- [2] K. Panfilov, V. Konzarenko «Instead of work. Communication in social networks inflicts serious damage on the Russian economy»/ vc.ru [electronic resource]// URL: <https://otchetonline.ru/art/direktoru/33226-vmesto-raboty-obschenie-V-socsetyah-nanosit-rossiyskov-ekonomike-ser-eznyy-uscherb.html>, 2017.
- [3] I. Shevchuk, A. Lebedev, M. Lovcheva «Case: how to pay employees only for productive work», HR-blog Zarplata.ru [electronic resource]// URL: <https://blog.zarplata.ru/2016/09/27>, 2017.
- [4] E. Gurova, «Information technologies in the personnel management», Kadrovik (No. 5-3), pp.10-15, 2008.
- [5] E. Gurova, «Formation of the database of personal account of employees with the use of MICROSOFT ACCESS», Kadrovik (No. 6-1), pp.48-60, 2009.