The sample of calculation of the cost value and the price of the designed device

ECONOMIC PART

Characteristic of an economic case of the project

Kerberos is a computer network authentication protocol that works on the basis of 'tickets' to allow nodes communicating over a non-secure network to prove their identity to one another in a secure manner. The protocol was named after the character Kerberos (or Cerberus) from Greek mythology, the ferocious three-headed guard dog of Hades. Its designers aimed it primarily at a client–server model and it provides mutual authentication—both the user and the server verify each other's identity. Kerberos protocol messages are protected against eavesdropping and replay attacks.

1. Calculation of cost of materials for project accomplishment

The estimate of costs for carrying out of scientifically research work settles payments under following clauses. Calculation is performed under the formula:

$$Pm = Ktp \sum_{i=1}^{n} Hpi * Ci$$

Where; K_{TP} – the coefficient considering hauling expenses

($K_{TP} \approx$ from 1.0 to 1.10) for the project we accept $K_{TP} = 1$;

H_{pi} – norm of the expenses a material kind on the project;

C_i – unit of selling price of material kind, ruble;

N – Quantity of applied kinds of materials.

Table 1 - Calculation of costs for materials

№ п/п	The name of materials	Unit of measure	The price, ruble.	Quantity	The sum, ruble.
1	2	3	4	5	6
1	Paper format A1	Sheet	0.7	6	42
2	Paper format A4	Sheet	0.15	150	22.5
3	Stationery	-	-	-	70
4	Materials for experiences and designing	-	-	-	120
The sum of expenses		-	-	-	254.5

The estimate of costs for carrying out of scientifically research work settles payments under following clauses:

2. Calculation of a base salary of the personnel occupied with accomplishment of works under the project.

The size of costs settles payments under the formula:

$$Pow = Knp \sum_{i=1}^{n} \mathrm{T}ci * \mathrm{N}i * \mathrm{t}i$$

Where; T_{ci} – a wage rate for a day, categories of workers, ruble;

N_i – quantity of workers of a category;

t_i – time of actual work of the worker of a category under the project, day;

K_{np} - coefficient of awards on bonus systems

($K_{np} \approx$ from 1.10 to 1.40) for the project we accept $K_{np} = 1.2$;

Calculation of the produce in the table:

Table 2- Base salary calculation

№ п/п	The name of categories of workers and posts	Quantity of units, the people	Salary for one month, ruble.	Coefficient of bonus surcharges	Expenditures of labour, months	The sum, ruble.
1	2	3	4	5	6	7
1	The supervisor of studies of the project	1	1000	1.2	3	3600
2	The engineer	2	800	1.2	3	5760
The sum of expenses		-	-	-	-	9360

3. Calculation of an additional salary of the contractors, including the various payments provided by the labour law, under the formula:

Additional wages include a variety of performers stipulated by the labour legislation of the payment and is calculated according to the formula:

$$\mathrm{Pnw} = Pow * \frac{Hnw}{100},$$

Where, H_{nw} – the specification of an additional salary,

$H_{nw} \approx$ from 10 to 25%, for the project it is accepted $H_{nw} = 20\%$.

$$Pnw = 9360 * \frac{20}{100} = 1872 \text{ ruble}$$

4. Calculation of deductions to social insurance under the formula:

$$Poc = (Pow + Pnw) * \frac{Hoc}{100},$$

Where, H_{oc} – rate of deductions on social ensurance (tax), $H_{oc} = 34.6\%$

$$Poc = (9360 + 1872) * \frac{34.6}{100} = 3886.27 \text{ ruble}$$

5. Calculation of expenses on scientific business trip under the formula:

We calculate the other expenses for materials scientific and technical information and the fee for the use of internet and telephone, etc.

The cost is calculated according to the formula:

$$Pkom = Pow * \frac{Hkom}{100},$$

Where, H_{kom} – the specification on scientific business trip expenses,

$H_{kom} \approx$ from 5 to 20%, for the project we accept $H_{kom} = 20\%$.

$$Pkom = 9360 * \frac{20}{100} = 1872 \text{ ruble}$$

6. Calculation of common enterprise expenses under the formula:

Indirect cost includes the cost of management and overhead cost, calculated according to the formula"

$$Pkoc = Pow * \frac{Hkoc}{100},$$

Where, H_{koc} - the specification of indirect expenses, $H_{koc} \approx$ from 50 to 100 %, for the project it is accepted $H_{koc} = 90$ %

$$Pkoc = 9360 * \frac{90}{100} = 8424 \text{ ruble}$$

7. Calculation of the complete cost value of the project:

The total cost of scientific and technical products is determined as the sum of all cost in all respects (clauses 1-6) as according to the formula:

$$C_n = P_m + P_{ow} + P_{nw} + P_{oc} + P_{kom} + P_{koc}$$

$$C_n = 254.5+9360+1872+3886.27+1872+8424=25668.77 \text{ ruble}$$

8. On level of profitability in percentage of the complete cost value the profit settles payments:

At the average level of profitability in percent of the total cost is determined by the target profit unit of scientific and technical products according to the formula:

$$P_r = C_n * \frac{Y_p}{100}$$

Where, Yp - profitability level, Yp ≈ from 10 to 30 %, for the project we accept Yp = 30 %.

$$P_r = 25668.77 * \frac{30}{100} = 7700.63 \text{ ruble}$$

9. Calculation of the price of the project under the formula:

To determine an approximate (estimated) wholesale price of scientific and technical products according to the formula,

$$B_n = C_n + P_r$$

$$B_n = 25668.77+7700.63=33369.40 \text{ ruble}$$

10. Calculation of the tax to value added (VAT) under the formula:

The Value Added Tax is determined by the formula:

$$VAT = B_n * \frac{H_{vat}}{100}$$

Where, Hvat - the tax rate on vat (the tax), Hvat = 20%.

$$VAT = 33369.40 * \frac{20}{100} = 6673.88 \text{ ruble}$$

11. Calculation of the price of the project taking into account the VAT under the formula:

To determine the selling price of scientific and technical products with VAT according to the formula:

$$B = B_n + VAT$$

$$B = 33369.40 + 6673.88 = 40043.28 \text{ ruble}$$

Calculation of costs for the project and the project price are resulted in table 3.

Table 3 - The Estimate of costs for the project

№	Clauses of costs	Calculation	The sum, ruble.
1	2	3	4
1	Materials (P_m)	Table 1	254.5
2	Base salary (P_{ow})	Table 2	9360
3	The additional salary (P_{nw})	$9360 * \frac{20}{100}$	1872
4	Deductions in population social insurance fund (P_{oc})	$Poc = (9360 + 1872) * \frac{34.6}{100}$	3886.27
5	Scientific business trip expenses (P_{kom})	$9360 * \frac{20}{100}$	1872
6	Common enterprise expenses (Ркос)	$9360 * \frac{90}{100}$	8424
7	Total the cost value (Cn)	254.5+9360+1872+3886.27+ +1872+8424	25668.77
8	Profit (P_r)	$25668.77 * \frac{30}{100}$	7700.63
9	The project price (B_n)	25668.77+7700.63	33369.40
10	The value-added tax (VAT)	$33369.40 * \frac{20}{100}$	6673.88
11	The price from the VAT (B)	33369.40+6673.88	40043.28

Conclusions: Kerberos system where authentication is based on combined ‘asymmetric’ and ‘symmetric’ key cryptography, and authorization is based on the ‘context-aware access control mechanism’ has been achieved. Costs for development of such system have constituted 40043.28 ruble.