

Table 1. Preliminary data for evaluating the efficiency of using a device for monitoring the technical condition of structures (cost estimates for current and periodic monitoring inspections)

№	Types of work to be performed	Time norm for length: 1 running meter (hours)		Number of employees		Price per person/hour		Cost for monitoring, inspection, and verification: 1 sum per linear meter		Size	General	
1	2	3		4		5		6		7	8	
Temir yoʻl veaduk (galereya)lari uchun												
Options		A	B	A	B	A	B	A	B	1	A (soums)	B (soums)
Inspect the structure on both sides of the beam, inspect the openings, and determine if there are any defects (defects) in the structural elements.		0,16	0	2	0	37 458 30 170	0	10 820,48	0		10 820,48	0
Self-examination: at the entrance and exit points of the facility		0,16	0,16	2	2	37 458 30 170	37 458 30 170	10 820,48	10 820,48	1	10 820,48	10 820,48
Camera work (monitoring and accounting work performed in the room after inspection): preparing a report on the implementation of monitoring work for safer operation of the facility		1	0	2 (5)	0	37 458 30 170	0	67 628	0	1	67 628	0
Total salary for 1 post-meter during monitoring:											89 268,96	10 820,48
For railway bridges												
Inspect reinforced concrete spans, support columns, metal support parts, ballast thickness in reinforced concrete spans, and other measurements to verify compliance with the guidelines		A	B	A	B	A	B	A	B	1	A (soums)	B (soums)
		0,49	0	2(3)	0	37 458 30 170	0	33 137,72	0		33 137,72	0
Inspection of the upper part of the road, measurement of the alignment of the road axis with the intermediate and support axes, determination of the compliance of the road condition with the current instructions		0,08	0	2	0	37 458 30 170	0	5 410,24	0	1	5 410,24	0
Self-examination with depth measurements		0,25	0,25	2	2	37 458	37 458	16 907	16 907	1	16 907	16 907

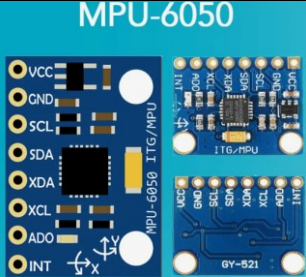

					30 170	30 170					
Camera work (monitoring and accounting work performed in the room after inspection): preparing a report on the monitoring work for the future safe use of the bridge.	1	0	2(5)	0	37 458 30 170	0	67 628	0	1	67 628	0
Total salary for 1 post-meter during monitoring:										123 083	16 907




*** Note:**




A - costs for the current variant of technology for technical inspection and testing of railway bridge and viaduct structures;

B - costs for the proposed variant of technology for technical inspection and testing of railway bridge and viaduct structures.

Table 3. Costs of the monitoring and control system for warning indicators of emergency impacts on railway structures

№	Device name	Device visibility	Quantity (pcs)	Price (sum)	Total price
1	MPU 6050 touch sensor		12	25 000	300 000
2	SIM800L		1	51 000	51 000

3	NRF24L01+PA+LNA modul		12	31 000	372 000
4	Arduino UNO		12	45 000	540 000
5	Double-sided mounting board (5x7)		12	6 000	72 000

6	Vibration and shock piezoelectric detection sensor module		12	7 000	84 000
7	Dupont connecting wires		2 in the package	8 000	16 000
8	4,2 V 10000 mAh 18650 accumulator battery		24	6 000	144 000
Total:					1 579 000 soums