

VISOKA ŠOLA ZA PROIZVODNO INŽENIRSTVO

DIPLOMSKO DELO

**NADZOR TRANSPORTNIH ENOT V PREMOGOVIKU
VELENJE S TEHNOLOGIJO RFID**

**CONTROL OF TRANSPORT UNITS IN THE VELENJE
COAL MINE WITH RFID TECHNOLOGY**

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POVZETEK

Obstoječi nadzor transportnih enot v jami s tehnologijo črtne kode v Premogovniku Velenje ne zagotavlja zanesljivega in učinkovitega nadzora, zaradi česar nastajajo nepotrebni stroški. Obstoječi nadzor je zato treba nadgraditi z ustrezno tehnologijo, ki bo omogočala izboljšanje nadzora, zmanjšanje stroškov transporta v jami in izboljšanje učinkovitosti načrtovanja. V diplomskem delu je podana analiza obstoječega stanja nadzora transportnih enot v premogovniku s črtno kodo in ročnimi terminali ter predstavljena možnost nadgradnje nadzora s tehnologijo RFID. Na podlagi zahtev in specifičnih pogojev dela v jami je izbrana oprema in narejena zasnova postavitve sprejemnikov in anten v rovih ter namestitve odzivnikov na transportne enote. Podana je ocena zmanjšanja stroškov transporta ter povečanja učinkovitosti in zanesljivosti nadzora z uvedbo tehnologije RFID v primerjavi z obstoječim stanjem. Predstavljene so tudi gospodarnost uvedbe in možnosti razširitve na spremljanje lokacij zaposlenih, kar bo vplivalo tudi na izboljšanje varnosti v jami.

Ključne besede: premogovnik, jamski transport, črtna koda, nadzor, RFID.

CONTROL OF TRANSPORT UNITS IN THE VELENJE COAL MINE WITH RFID TECHNOLOGY

SUMMARY

The existing control of transport units with barcode technology in the Velenje Coal Mine is not reliable and effective, which causes unnecessary costs. Therefore, the existing control needs to be upgraded with appropriate technology, which will improve the control, decrease the transportation costs in the mine and improve the effectiveness of planning. The thesis provides an analysis of the current state of transport units control in the mine with the help of barcodes and manual terminals and presents the possibility of upgrading the control with RFID technology. Based on the demands and specific working conditions in the mine was chosen proper equipment and prepared a plan for the installation of receivers and antennas in the tunnels and installation of transponders on transport units. An assessment of the reduction of transportation costs and increase of efficiency and reliability of the control with the introduction of RFID technology compared to the current state is provided. The economics of the implementation and possibilities for extending the control to monitor the locations of employees, which will also improve the safety in the mine are also presented.

Keywords: coal mine, mine transport, barcode, control, RFID