Factors Effect on Metal Detecting System using Mobile Robot

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Abstract

The metal detection mobile robot has got to the summit of the utilized methods in landmines and unexploded ordnance detection techniques, while it is used in other applications like archeology, treasure and mines prospection and underground metallic services search in different scales. This paper uses a path planning, without supervisor robot at three environments. The path plan supposes that metal is safe so it cover the entire area in rectangle approach with detection of metal. The program which has been written in c++.net saves path of the robot and the detected metals locations in Microsoft Excel file. The program does not need a supervisor since it deals with all the possibilities of path planning. The three outdoor environments which were experimented are paved land, sand land and grassland.

The metal detection autonomous mobile robot has succeeded to move in desired navigation strategy. The experimental work shows that the increase of translation velocity leads to increase in error, the paved land has the least error and the sand land has the biggest error, the decrease in rotational velocity decreases the elapsed time in turnover and stroke and at low
velocities the effects of the land types have diminished.

References


Index Terms

Computer Science Wireless
Keywords

Metal Detection, Mobile Robot, Autonomous, path planning.