Robotics and Embedded Systems Applied to the Buried Pipeline Inspection

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Abstract : The work aims to develop a robot in the form of autonomous vehicle to detect, inspection and mapping of underground pipelines through the ATmega328 Arduino platform. Hardware prototyping very similar to C / C ++ language that facilitates its use in robotics open source, resembles PLC used in large industrial processes. The robot will traverse the surface independently of direct human action, in order to automate the process of detecting buried pipes, guided by electromagnetic induction. The induction comes from coils that sends the signal to the Arduino microcontroller contained in that will make the difference in intensity and the treatment of the information, then this determines actions to electrical components such as relays and motors, allowing the prototype to move on the surface and getting the necessary information. The robot was developed by electrical and electronic assemblies that allowed test your application. The assembly is made up of metal detector coils, circuit boards and microprocessor, which interconnected circuits previously developed can determine, process control and mechanical actions for a robot (autonomous car) that will make the detection and mapping of buried pipelines plates.

Keywords : robotic, metal detector, embedded system, pipeline inspection
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