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(51) International classification :A61B0017000000, A61B0090000000, H01M0004525000, H05B0045540000, H01Q0003240000 (86) International Application No :NA Filing Date :NA (87) International Publication No : NA (61) Patent of Addition to Application Number :NA Filing Date :NA (62) Divisional to Application Number :NA Filing Date :NA		(71)Name of Applicant : 1)INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD Address of Applicant :Dhanbad - 826004, Jharkhand, India Dhanbad ----- ----- Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)Dr.Vivek Bajpai Address of Applicant :Department of Mechanical Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad ----- 2)Mr. Rajesh Sahoo Address of Applicant :Department of Mechanical Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad ----- 3)Mr. Prakhar Shukla Address of Applicant :Department of Mechanical Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad -----
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(57) Abstract :

The present invention relates to an adaptive pulse width control system based on actuating tool feed and retraction motion for electro-discharge machine (EDM) by detecting the ineffective pulse conditions i.e. short circuit and open circuit phenomena. The system comprises an assembled inter-electrode gap status detection unit (100) which functions with voltage limit definitions to differentiate pulse conditions for short circuit and open circuit by utilizing a voltage sensor (104). The voltage conditions are forwarded as commands for tool positioning through a microcontroller board (103) which initiates the actuator driver to handle the actuator motion. The signal for short-circuit condition initiates power supply (106) turn off and commands the actuator to retract the tool in a controlled manner, further the power supply (106) turns on and confirms the voltage condition to apply commands such as tool feed for open circuit condition and no movement for voltage within acceptable range. The invented system aids in achieving a self-adjusting effective duty cycle to overcome various undesired pulse phenomena. [Figure 1]

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