



## **PLC BASED ADAPTIVE FUZZY PID SPEED CONTROL OF DC BELT CONVEYOR SYSTEM**

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*Abstract- Conveyor belt system is one of the most common transfer systems used in industry to transfer goods from one point to another in a limited distance. It is used in industries such as the electro-mechanical/mechanical assembly manufacturing to transfer work piece from one station to another or one process to another in food industries. The belt conveyor system discussed in this paper is driven by a DC motor and two speed controllers. Two PID speed controllers are designed to provide comparison to the main controller which is the Adaptive Fuzzy PID Speed controller. Both controllers are implemented in a real hardware where the algorithm will be written in PLC using SCL language. The experimental result shows that Adaptive Fuzzy PID controller performs better and adapted to the changes in load much faster than the conventional PID controller. This project has also proved that PLC is capable of performing high level control system tasks.*

**Index terms:** DC belt conveyor system, speed controller, adaptive fuzzy PID, programmable logic controller, structured control language.