A Feedback System to Improve the Beam Spill Structure of a Synchrotron, <u>U. BLELL</u>, GSI Darmstadt - Both the high energy experimental program and especially the GSI Therapy project require a uniform intensity distribution of the slowly extracted ion beam from the synchrotron SIS. At GSI a feedback system has been developed to improve both the coarse and the fine time structure of the spill. Beside the technical features of this system results of theoretical simulations and experimental results will be presented.