Department:	**Mechanical Engineering – Mechatronics**	
Project:	**Development of an image protruding machine for blind**	
Supervisor:	**Dr. Mostafa Rostom A. Atia**	
Students:	Abd El Rahman Mohmed Adham	
	Islam Mohamed Wahaba	
	Hamzah Mohamed Shadfouh	
	Omar Masoud Hamed	
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ABSTRACT

Blind is a real problem in Egypt and world. Protruded symbols on paper are well known method to introduce text to blind persons. Introducing images to blind faces difficulties. Protruded image is a good solution to show the blind some details of images. In this project a device for generating protruded image is developed. The image is formed from a matrix of pins, which protruded in different heights. The heights are controlled using a system of stepper motors. The machine is designed, manufactured and tested in real cases. The control system is based on microcontroller.

During the project, the students have designed the mechanical part of the machine. This includes the preparation of engineering drawing, workshop drawings and calculation sheets. The mechanical parts have been manufactured and assembled according to the design. The control strategy and control system have been developed by the students. The control system consists from hardware, such as electronic circuits, and software, such as motion control and user interface. The system has been established and tested. The tests prove the system workability and accuracy.

The project contains all the mechatronics branches. It contains mechanical system, which is controlled using electronic circuits. The control strategy is contained in software. All the system parts have been developed and executed by the students.

Department:	**Mechanical Engineering – Mechatronics**	
Project:	**Paper Shredding Machine**	
Supervisor:	**Dr. Mostafa Rostom A. Atia**	
Students:	Ahmed Ali Abd El-Latif	9109341
	Bahaa Akmal Ali	8109540
	Mahmoud Emam Khalil	8109104
	Mohamed Mamdouh Mohamed	9109551

ABSTRACT

Paper Shredding machine is an essential machine for paper recycling process. Moreover, some papers are shredded due to security requirements such as old exam papers. There are many types of shredders. The current project focuses on strip type shredder in the office size. The machine operation needs human monitoring for many reasons such as jamming and fire. In the current project a jamming sensor is added and based on its signal the motor runs in reverse direction. Another heat sensor monitors the fire and activates appropriate actions. The machine is designed, manufactured and tested in real cases. The control system is based on microcontroller.

During the project, the students have designed the mechanical part of the machine. This includes the preparation of engineering drawing, workshop drawings and calculation sheets. The mechanical parts have been manufactured and assembled according to the design. The control strategy and control system have been developed by the students. The control system consists from hardware, such as electronic circuits, and software, such as motion control and user interface. The system has been established and tested. The tests prove the system workability and accuracy.

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