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**DESIGN AND DEVELOPMENT
OF A
ROBOTIC TAPE APPLICATOR**

A Thesis presented in partial fulfilment of the
requirements for the degree
of
Master of Technology
in
Manufacturing and Industrial Technology
at
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Murali Guntur
1996

To
Saeid
my *guru*

*Guruh Brahma Gurur Vishnuhu Gurur Devo Maheshwaraha
Gurur sackshat parah brahma Tasmai sri gurave namaha*

*Hindu mythology says
Guru is Creator (Brahma), Donor (Vishnu),
Protector (Maheshwara) and the ultimate person (parah brahma).
Hence I falicitate (namaha) him.*

Murali

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ABSTRACT

The work described in this thesis is on the design, operation and testing of a programmable adhesive tape applicator 'EziStick'. The system demonstrates a mechatronics system comprised of mechanical, electronic and computer systems. 'EziStick' is capable of identifying any tape edge and then initialising and loading the tape over the applicator foot for successful application of tape. The tape tension monitoring system will allow continuous monitoring of the tape tension during its application. 'EziStick' is currently attached to the end of a robot arm to enhance its work envelope. The system is controlled via a low cost microcontroller and it is highly modular and transportable. 'EziStick' may be attached to the end of any robot (machines) with various degrees of freedom. In this way the cost of the system is adjusted by the complexity of the application. The experimental results showed that there is a relationship between the tape application speed and the quality of its application. Although the current prototype is designed for the application of aluminium tape, tests have indicated that other types of tape can be used in 'EziStick'.