



REMOTE CONTROLLED ROBOTIC PIPETTE  
(SINGLE CHANNEL)



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Field trials : Successfully tested at IMTECH Chandigarh  
Know-how Status : Ready for Technology transfer.

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Contact Details

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## AUTOMATED LIQUID MEDIA DISPENSING SYSTEM



### Introduction and General Description:

An automated bio-chemical dispensing system with computer-assisted controls is an important requirement in the liquid handling area. The system developed will enable the researchers to automate certain standard operations and routine repetitive operational steps. The developed system is useful in handling daily routine repetitive procedures like serial transfer, pipetting, mixing etc. The embedded pc in association with electronic module incorporated in the system will carry out the tasks such as:

- ❖ to set-up the instrument as per the program;
- ❖ to control and monitor the operation sequences;
- ❖ to log the data; and
- ❖ Data interpretation, if required any.

The system designed and developed is a versatile multi-probe computer controlled system to handle dispensing of fluids in milli- & micro- liters for a variety of applications. It provides automatic dispensing of liquids at a faster speed and higher throughput with better precision and reproducibility of assays. The system developed has been fully automated and computer controlled.

### Function :

Computer configured, microcontroller controlled, Liquid Dispensing with drop / continuous dispensing in programmable patterns

### Liquid Dispensing Performance :

Dispensing volume : up to 2000  $\mu\text{l}$ ; error approx  $< 12\mu\text{l}$  @ 500 $\mu\text{l}$ ; rate 40 - 910  $\mu\text{l}$  per/ min (observed values at 675 $\mu\text{l}$ /min rate)

Number of channels : Max. 4 (channel to channel max variation  $< 8-20\mu\text{l}$ )

Dispensing Area : Maximum 10 well plates of 96 wells pattern, 12X8 (flat and round shaped)

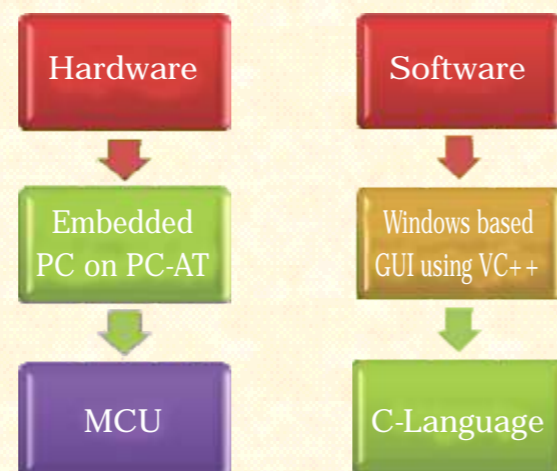
### Positioning System Performance :

X-stroke : 900mm (max.) Max Speed 150 mm/sec; pos error  $< 25\mu\text{m}$

Y-stroke : 200mm (max.) Max Speed 150 mm/sec; pos error  $< 25\mu\text{m}$

Z-stroke : 100mm (max.) Max Speed 150 mm/sec; pos error  $< 25\mu\text{m}$  Present system speed tested-75mm/s

### Control panel :



### Features:

- ❖ Simple menu driven operation
- ❖ User friendly GUI with *Integrated Touch Screen* & keyboard & mouse
- ❖ User selectable/ programmable Dispensing pattern and volume selection
- ❖ On-screen display of all key parameters / measurements and operations
- ❖ Software operated emergency stop switch

### Capabilities:

- ❖ Its capabilities can be summarized broadly as:
- ❖ Automated dispensing in micro & milliliter range
- ❖ Precision of dispensing
- ❖ Speed of dispensing
- ❖ Adaptability to user's requirement
- ❖ Fully computer controlled along with safety features.

### Controls:

Controls has been provided through an integrated touch screen / computer key -board / mouse using its user friendly designed GUI ported on top of it

### Applications:

Mostly for life sciences R&D laboratories & secondly pharmaceuticals Industries-

- ❖ plant sciences,
- ❖ bio-molecular chemistry,
- ❖ chemical engineering,
- ❖ pharmaceutical industries,
- ❖ bio-technology,
- ❖ immunology,
- ❖ microbial technology etc