NOTICE INVITING QUOTATIONS
Sub: Purchase of "**2 XYZ Positioning Stages + Controller and Software**"

Sealed quotations in separate envelopes of technical and commercial bid kept in a one sealed outer envelope are invited for purchase of a Langmuir Trough as per specifications given below. Your sealed quotation should reach latest by 5 PM on 13th Dec 2012 to Prof. A. N. Bhaskarwar, Department of Chemical Engineering, Indian Institute of Technology – Delhi (IIT Delhi), Hauz Khas, New Delhi - 110016.

Micrometer Stage Set Up for imaging of Spreading of Oil on Air-Water Interface.

For the experimental set up, two cameras will be used to image the spreading of oil (with pigment added to it) on the top surface of a small amount of water taken in a petridish. One camera is a high resolution camera (Camera 2) and the other a low res cam (Camera1). The former would give detailed view of the spreading pattern from a closer point of view while the latter would give an overall view at the same instant of time.

Both camera 1 and camera 2 are to be mounted on separate XYZ positioning stages. Both XYZ stages should give controlled, accurate and measureable movements. They shoould be operable using a computer + two separate handheld controllers (one each). The X and Y movements will be used to capture different parts of the entire water surface offered by the petridish. The Z movement will be used to move the camera up and down for zooming/focusing.

Both the stages and the petridish will be mounted on a breadboard (2ft x 2ft x 2inch) which would serve as a base to hold all the equipment and also to ensure perfect horizontal alignment. The cameras will be fixed to the stages using a bracket.

The measurements of the cameras:

Camera 1: 4cm x 5cm x 8cm; 8cm is the vertical height when the camera is aligned with the lens at the bottom. Length of the lens is 5cm. Therefore total vertical length of the camera is 13cm. Weight: 200gm; The bottom of Camera1 (along with lens attached) must move down till 20cm from the top surface of the bread board.

Camera2: total vertical height 15cm ±5cm; width x length = 5cm x5cm; Weight: 250 gm approx. The bottom of camera2 (along with the lens attached) must move down till 13mm from the top surface of the bread board.

A. Specifications for XYZ Positioning Stage 1 (for Camera1):
   1. X Travel: 150 mm
   2. Y travel: 100 mm
   3. Z travel 300mm coarse travel (for positioning the camera for approximate focus) + 25mm fine travel (for fine focusing/adjustment)
   4. For coarse travel: This stage should move from 20 cm to 50 cm when measured from the top surface of the bread board.

B. Specifications for XYZ Positioning Stage 2 (for Camera2):
   5. X travel: 200 mm
   6. Y travel: 150 mm
   7. Z travel 150mm coarse travel (for positioning the camera for approximate focus) + 25mm fine travel (for fine focusing/adjustment)
   8. For coarse travel: This stage should move from 10cm to 25cm when measured from the top surface of the bread board.

C. Position Controllers + Software for operating the stage movements
   9. Two position controllers are required to operate the stage movements
   10. Software should interface the microstages with a computer and enable the operation of the stages
   11. The controllers should be able to give the required movement with precision
   12. The controllers should be able to give the exact position of the XYZ stage in all three coordinates. [The starting position of the stages to be fixed as zero].

Common specs
   13. The support must be strong and must give minimal vibration during movement.
   14. Whatever extra support structure / support frame if required can be included in the design.
   15. Both the stages should fit in within the area of 2ft x 2ft x 2inch standard bread board. (Only the breadboard is NOT to be supplied.)
   16. Both the stages should be operated from a computer by a single Controller + Software. Both the stages need not move simultaneously. They need to be operated one at a time.
   17. For both stages, the precision (least count) should be **0.01** mm for X, Y and Z movements.
   18. The movement of the stages should precise even in the vertical/inverted position
   19. Translation movement should not be effected due to the inverted position of the cameras; the support frames should be strong such that there should be no sagging due to long standing.
   20. Design of the stages should be such that the two camera stages can be used together as well as individually.
   21. Required cables, ports from/to the computer / camera stages must be supplied
   22. Drawings of the both the stages should be provided along with complete, exact measurements

Terms and conditions

1. Quotations must be in sealed envelope; technical and commercial bid must be sent separately in two sealed envelopes & then put together in one envelope. The quotes must reach the following address by **13th Dec 2012** by 17:00 hours latest.

Prof. A. N. Bhaskarwar
Lab No: II-384
Department of Chemical Engineering.
Indian Institute of Technology, Delhi
Hauz Khas New Delhi – 110016.
[Kind Attn: Lab II-384]

2. Price must be quoted CIF New Delhi.
3. Please specify warranty period.
4. Indian agency certificate must be enclosed if applicable.
5. Propriety certificate might be enclosed if applicable.
6. Payment through L/C.
7. Validity of quotations should be at least 3 months.
8. Period of delivery should be mentioned.
9. Educational discount should be mentioned.
10. No advance payment will be made.

Remarks: The Institute reserves the right to accept or reject any of quotations without assigning the reason thereof.

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NOTE-These pages are to be displayed on the IIT-D website.