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Key Players

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Steering Committee

Victor Moroz (Synopsys)
Charles Sturman (NMI)
David Clark (Clas-Sic)
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Virtual Reality Semiconductor Fabrication Training Facility

Background

Semiwise, in partnership with The National Microelectronics Institute (NMI) and Pragmatic Semiconductor Limited, has received a grant from Innovate UK to develop a Virtual Reality Semiconductor Fabrication Training Facility (VRSFT). This project addresses the high costs and resource demands of training in advanced semiconductor fabrication. By leveraging virtual reality (VR) and augmented Reality (XR), the project will create an immersive VR model of a modern fabrication facility, allowing trainees to interact with realistic representations of fabrication equipment and to learn about semiconductor manufacturing.

Key features

- **Training needs:** By 2030 more than 1M new semiconductor experts will be needed to enable the growth of the semiconductor industry and the Implementation of the US and EU Chips Acts.
- **Reduced cost:** Building a real semiconductor fabrication facility can cost between \$10 billion to \$20 billion. A single deep EUV stepper costs around \$500 million, more than an Airbus A380. With VR FAB training scheme, the cost is minimal.
- **Funding:** The project has secured a fund of £500,000 from Innovate UK to develop the VR training tool.
- **Technology:** The project utilizes Unity software to create an immersive experience of the clean room. For the actual fabrication process we use Technology Computer-Aided Design (TCAD) tools provided by Synopsys.

Business Outlook

If semiconductor manufacturing industry will require over 1 million additional employees by 2030, the training costs per employee is in the range of \$20,000 to \$50,000. This creates a potential training revenue of \$20 billion to \$50 billion for universities and training institutions.

Key Features

- The VR Training Fab will be a 'computer Game.
- It will include full set of equipment allowing advanced CMOS manufacturing.
- Generic as well as equipment manufactures specific equipment will be included.
- Flexible clean room layout will allow the users to configure their own cleanroom.
- There will be a multiple choice of equipment for users to configure their fab.

Future Plans

A natural extension of this project will be the Fab Managers game when you can learn to configure a fab, cost the building and the manufacturing, evaluate running costs and profits like Football Manager games.

By integrating VR into semiconductor training, this project aims to revolutionize the educational landscape, making advanced manufacturing skills more accessible and cost-effective.

Further Information

For further information and expression of interest please contact German Cherstovov german.cherstovov@semiwise.uk,