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14. ABSTRACT
The objective of this work was to create a 3D visualization that would be capable of giving commanding officers and others not intimately knowledgable about VSW / MCM operations a better understanding of the mission tasks involved and techniques used by the VSW / MCM units. Our approach was to implement a real time mission visualization with the interactive 3D graphics application called PeopleShop(TM). The application shows divers, mammals and other personnel performing the various steps in the VSW / MCM task. This tool is useful for interactively viewing and changing the scenarios and provides a base line tool for planning and analysis. Using source material on the real time mission visualization we produced a professional quality videotape that serves as a tool for explaining and planning the VSW / MCM mission and procedures. The system may be extended to applications such as tactical planning, concept development for advanced technology and immersive training.

15. SUBJECT TERMS
Very Shallow Water Mine Countermeasures Operations : Minefield Reconnaissance and Clearance

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Very Shallow Water/Mine Counter Measures Mission Visualization

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LONG-TERM GOAL

Our long term goal is to build mission visualization, rehearsal and training tools that involve realistic human characters and equipment.

OBJECTIVES

The objective of the work was to create a 3D visualization that would be capable of giving commanding officers and others not intimately knowledgeable about VSW/MCM operations a better understanding of the mission, tasks involved, and techniques used by the VSW/MCM units. In the phase I project in FY99, we created a video using 3D graphics technology to show divers, mammals, and other personnel using their technology and performing the various steps in the VSW/MCM task. This year we incorporated a list of improvements to the mission visualization and ported those scenarios to an interactive 3D graphics application called PeopleShop™. This tool is useful for interactively viewing and changing the scenarios. The final product is a video tape that will serve as a tool for explaining and planning the VSW/MCM mission and procedures.

APPROACH

Our approach was to create a storyboard summarizing VSW/MCM mission, obtain feedback regarding its accuracy from the VSW Detachment and others, then implement that mission visualization tool with PeopleShop. Key personnel involved in the project follows: Robert Playter was the BDI technical manager of the project for BDI, Greg Owens was a subject matter expert for BDI, Whitney Crane implemented the scenarios

in PeopleShop. Rich Hall and Steve Shippee of SPAWAR provided guidance regarding the EX-8 marine mammal system. Lt. Cdr Marc Sanders was the point of contact with the VSW Det. Cdr. Jack James and Eric Brower of the VSW Det. and Rick Nagle of Dynamic Systems provided valuable feedback regarding the accuracy of the storyboard.

WORK COMPLETED

We ported the characters, equipment, and scenes created last year to the PeopleShop application. We improved animations, added limited visibility to underwater and nighttime scenes, and implemented a specific list of improvements including:

1. **Overview graphic.** Overview slide depicting phases of operation.
2. **Improved model of LPD.** More accurate 3D model of LPD.
3. **Buddy Line.** Portray divers that are tethered together.
4. **More Accurate Loadout of RIB and CRRC.** Show more equipment in RIB.
5. **Transition to CRRC from RIB at Infiltration.** Show RIB and CRRC in water at transition.
6. **Marking of the Lane with Master and Slave Transponders.**
7. **Show both Ribs being launched together from LPD.**
8. **Improved Dolphin Actions.** More accurately depict placement of marker at mine.

RESULTS

We demonstrated these scenarios to a UUV AOA meeting in August at Dynamic Systems in Alexandria VA. We have compiled these improvements and the mission visualization scenarios together into a professional quality videotape.

IMPACT/APPLICATION

A secondary objective of the proposed work is to provide a baseline system on which VSW mission planning and analysis tools can be built. This use could be extended to detailed analysis needed for simulation-based acquisition. The system will also be extendable to applications such as tactical planning, concept development for advanced technology, and immersive training.

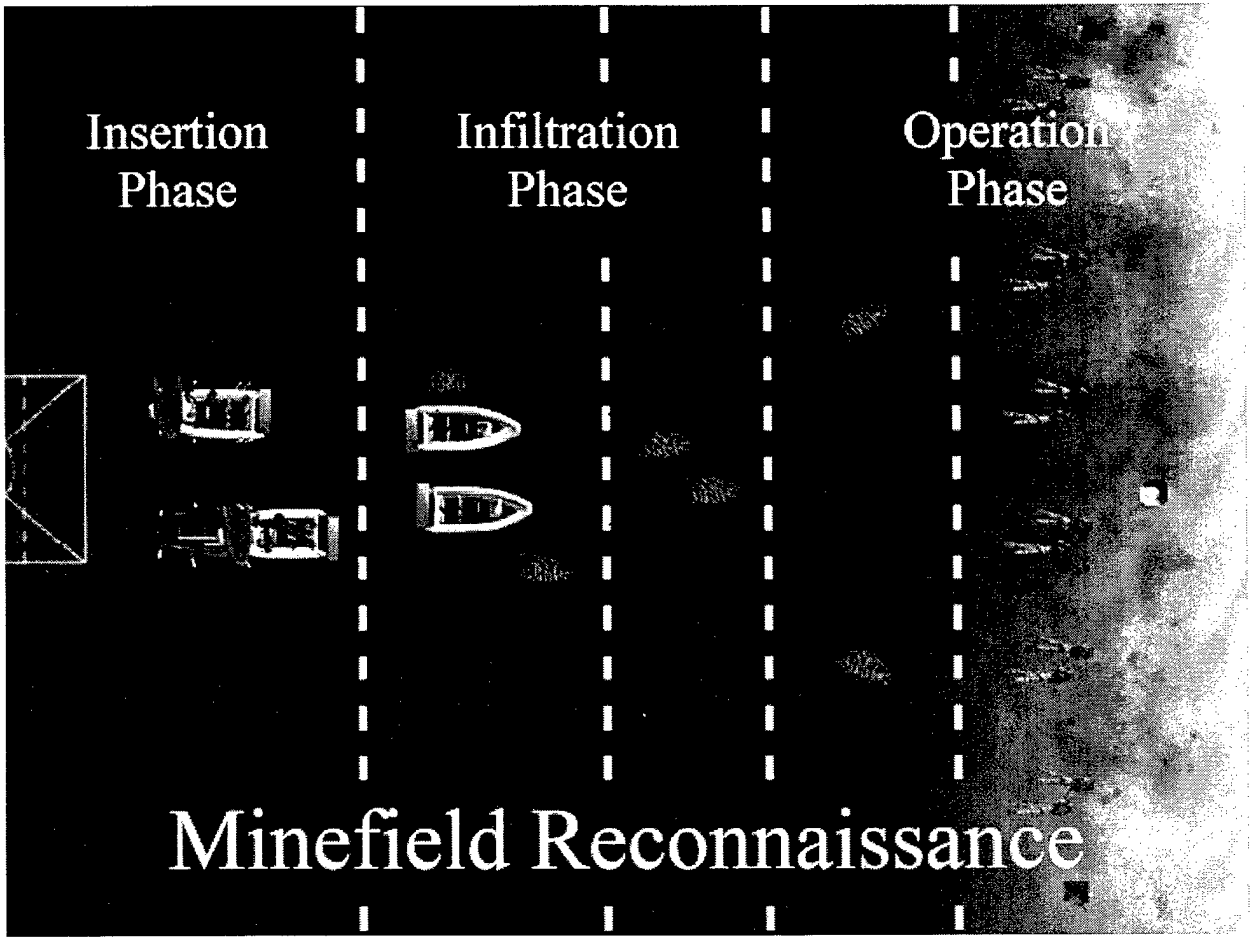
TRANSITIONS

SPAWAR is using the mission visualization video tape as part of their video production explaining the EX-8 marine mammal system.

RELATED PROJECTS

Related projects and products are being used for mission planning and rehearsal and marksmanship trainers for dismounted infantry. The STRICOM funded Institute for Creative Technologies is using this technology to develop the next state-of-the-art interactive officer training systems. A demonstration of the system prototype was made to Secretary of the Army Louis Caldera on September 26, 2000. A launch officer training system being developed by the Naval Air Warfare Center is using this technology.

BDI VSW/MCM Overview



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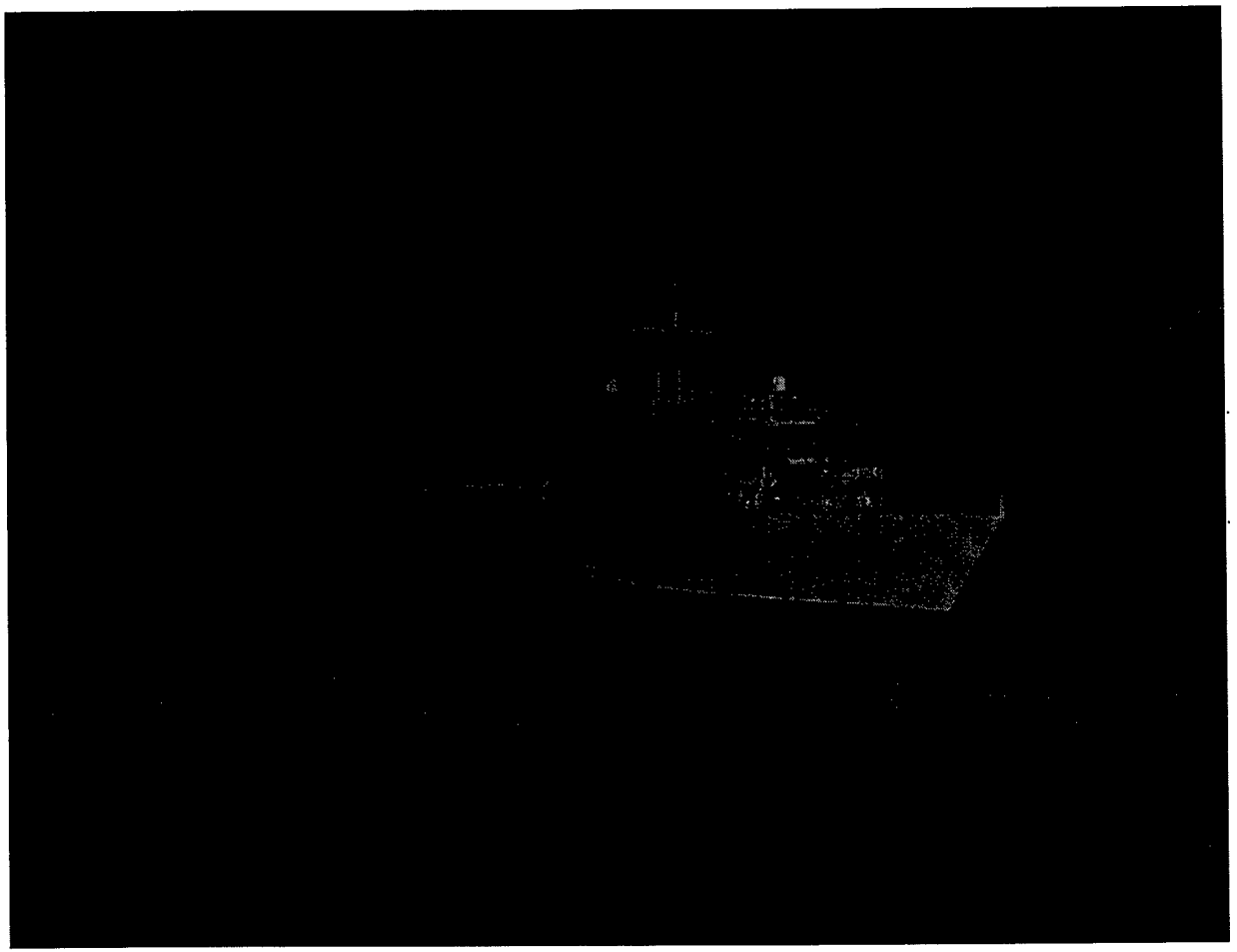
LPD



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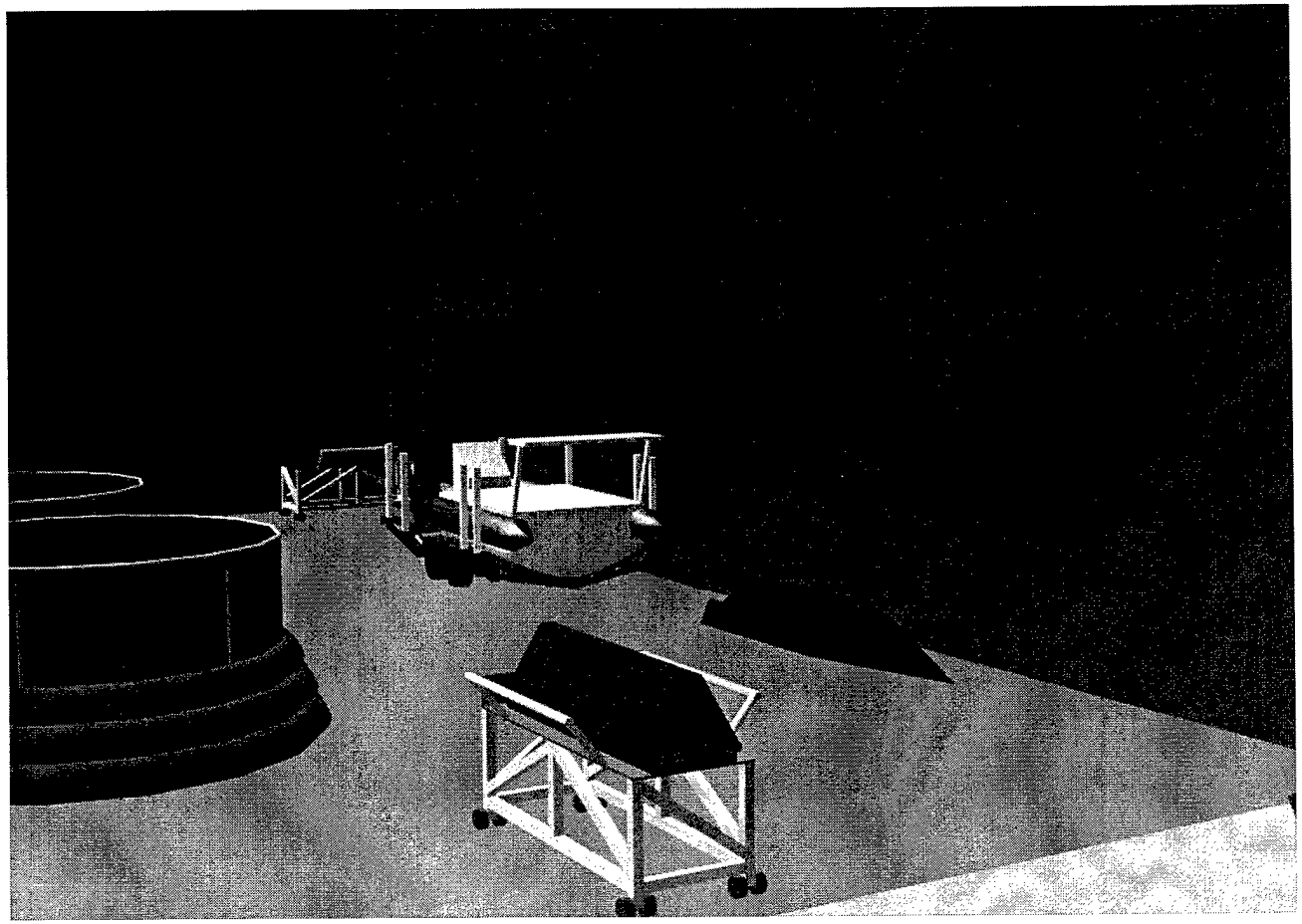
BDI VSW Det. Footprint in LPD



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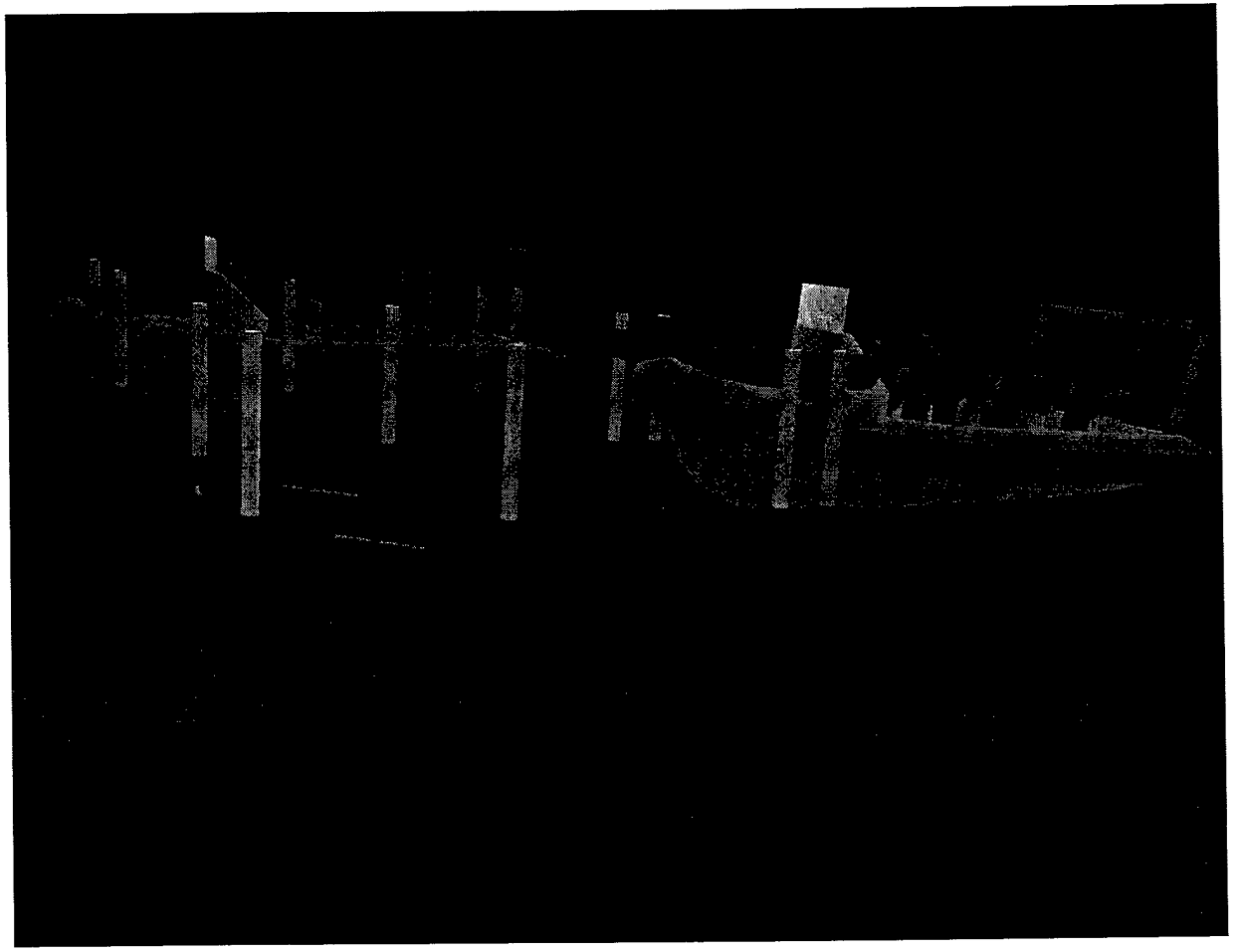
Launch



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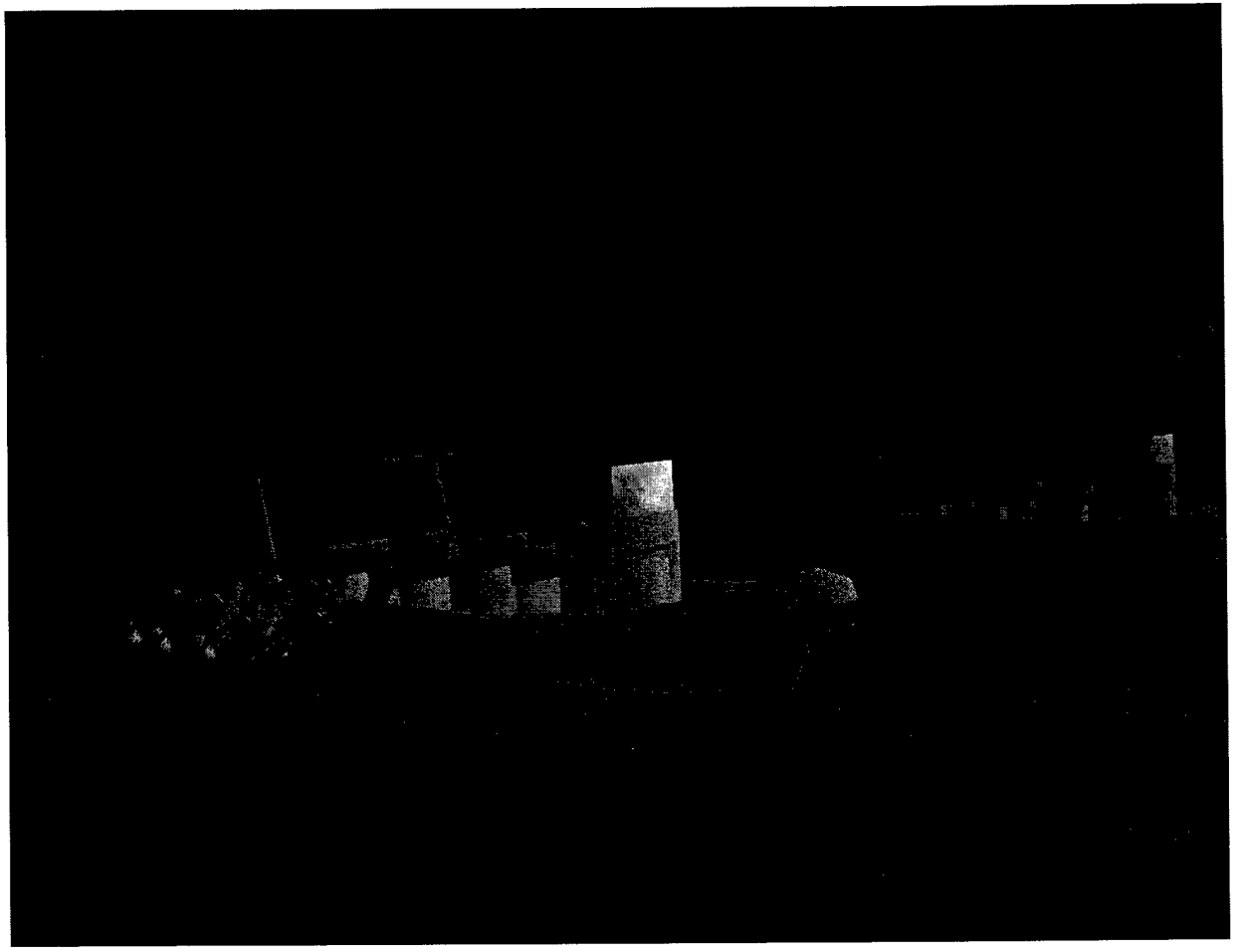
Insertion



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Infiltration

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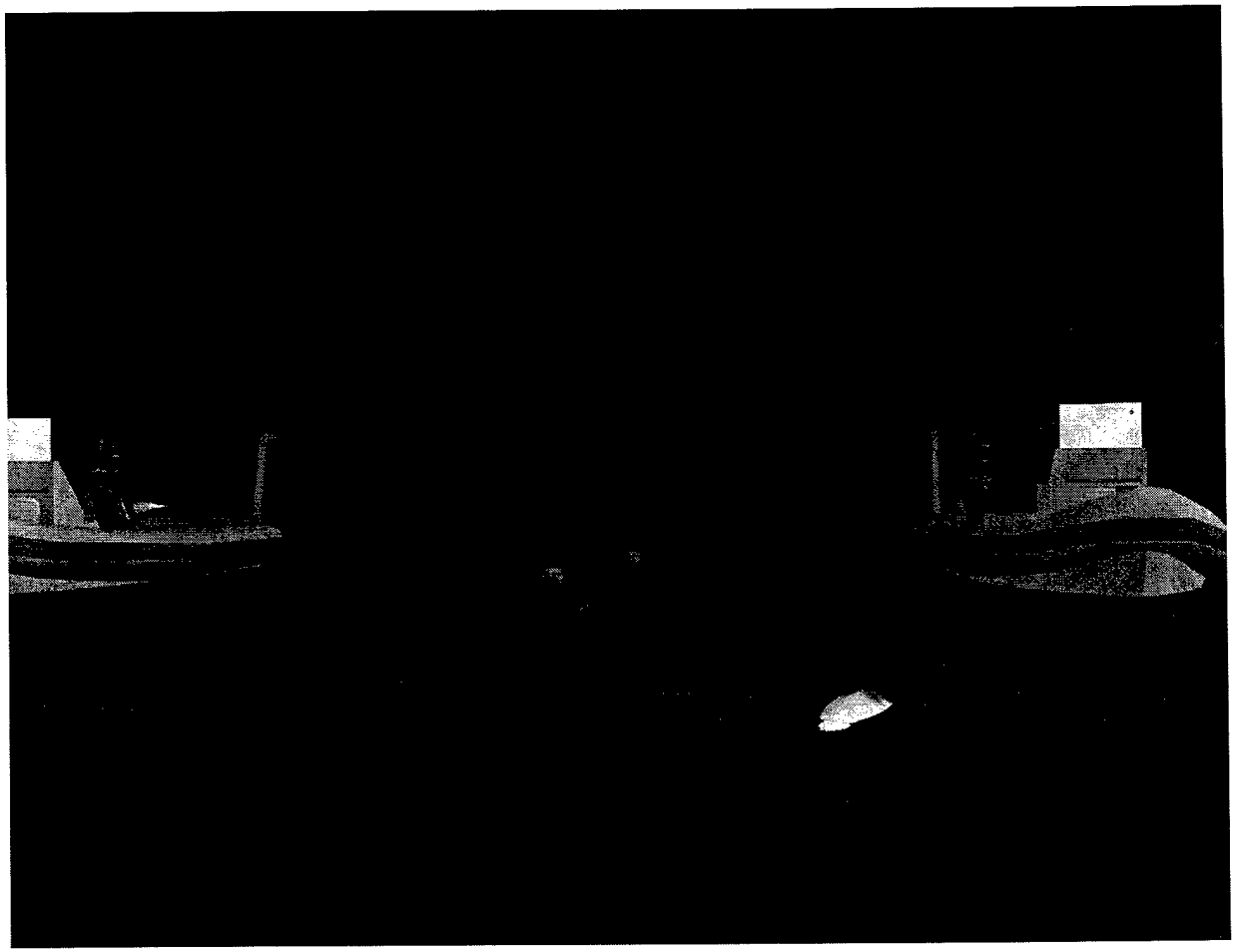
Ex-8 Infiltration



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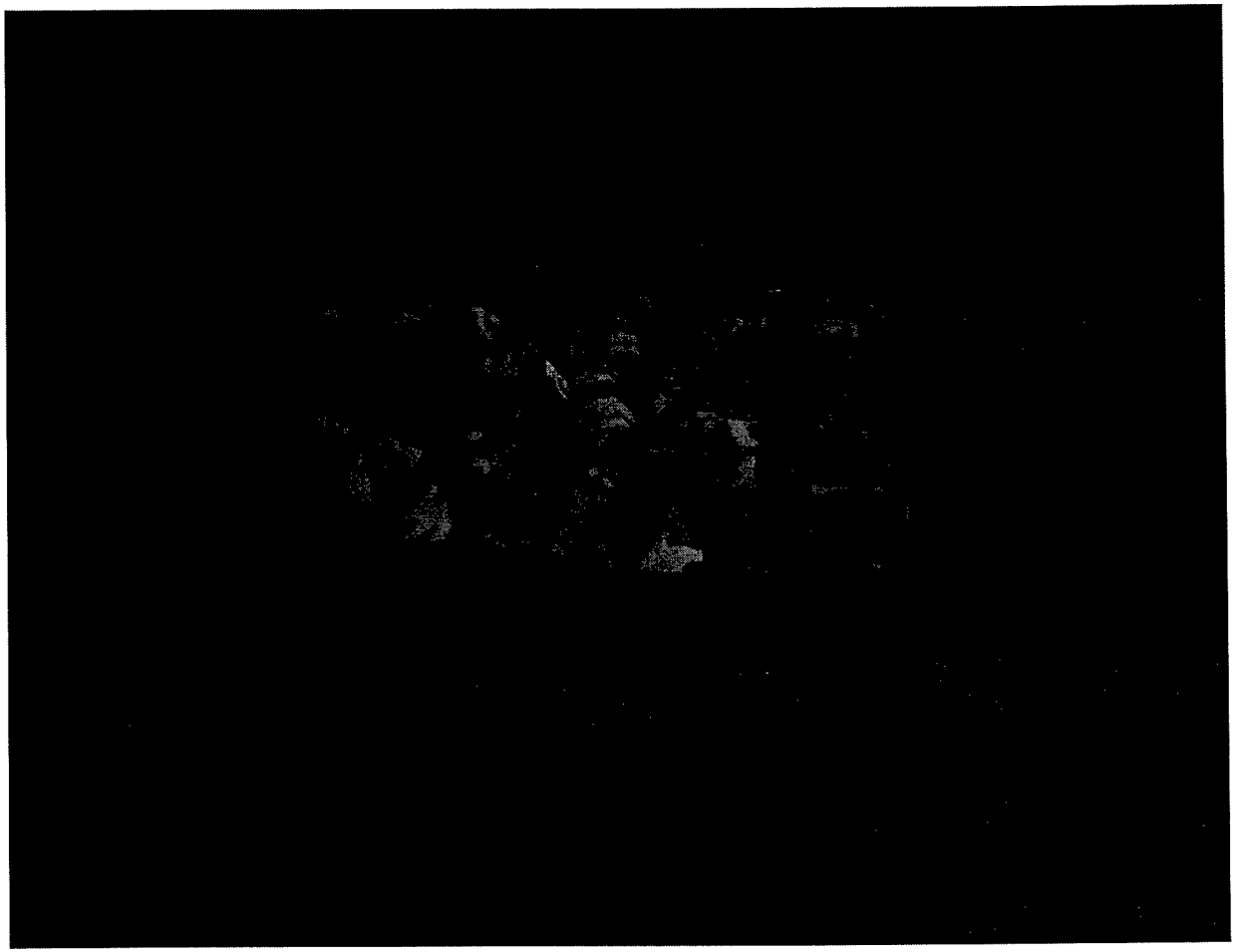
Marking the Lanes



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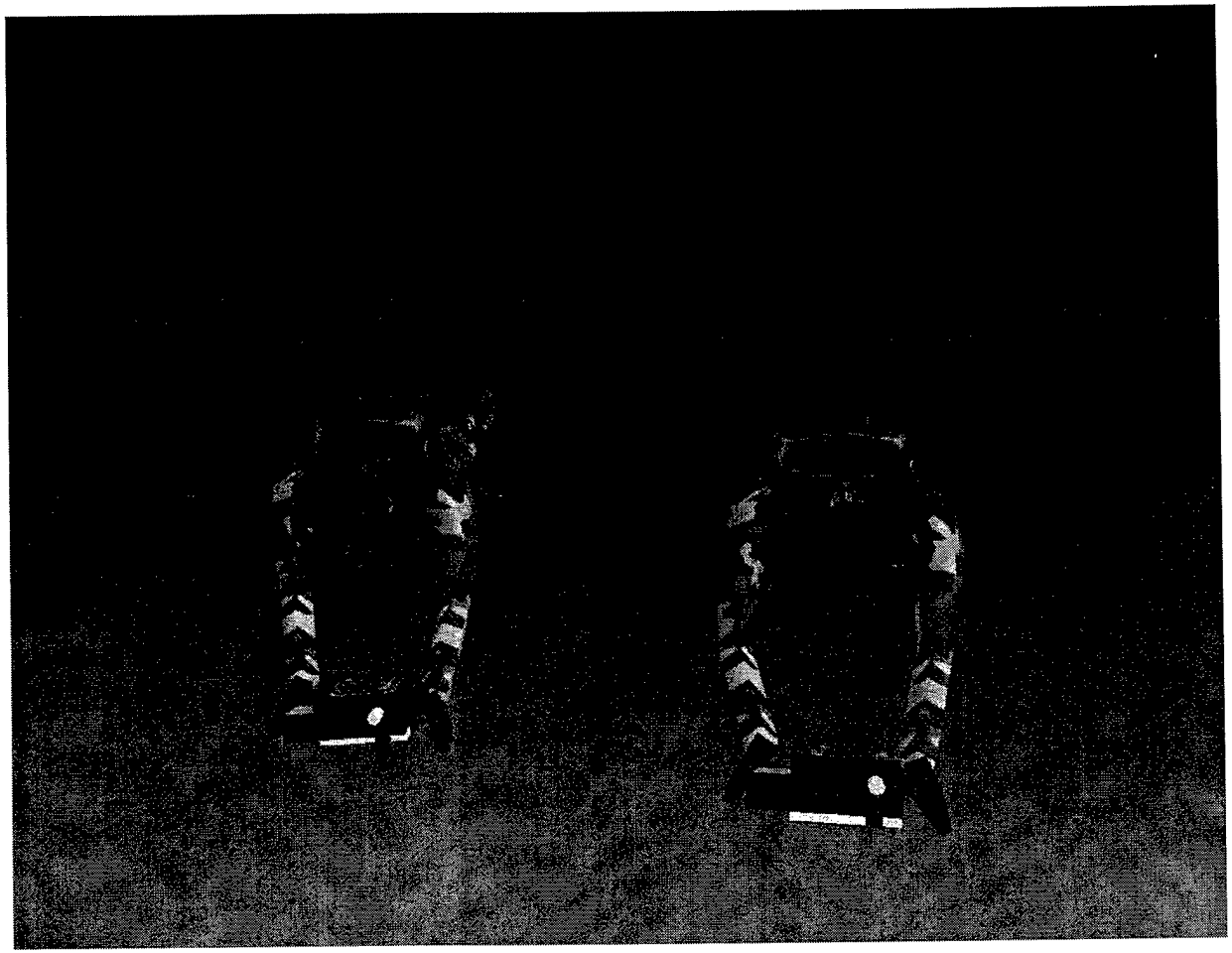
BDI VSW/MCM Divers



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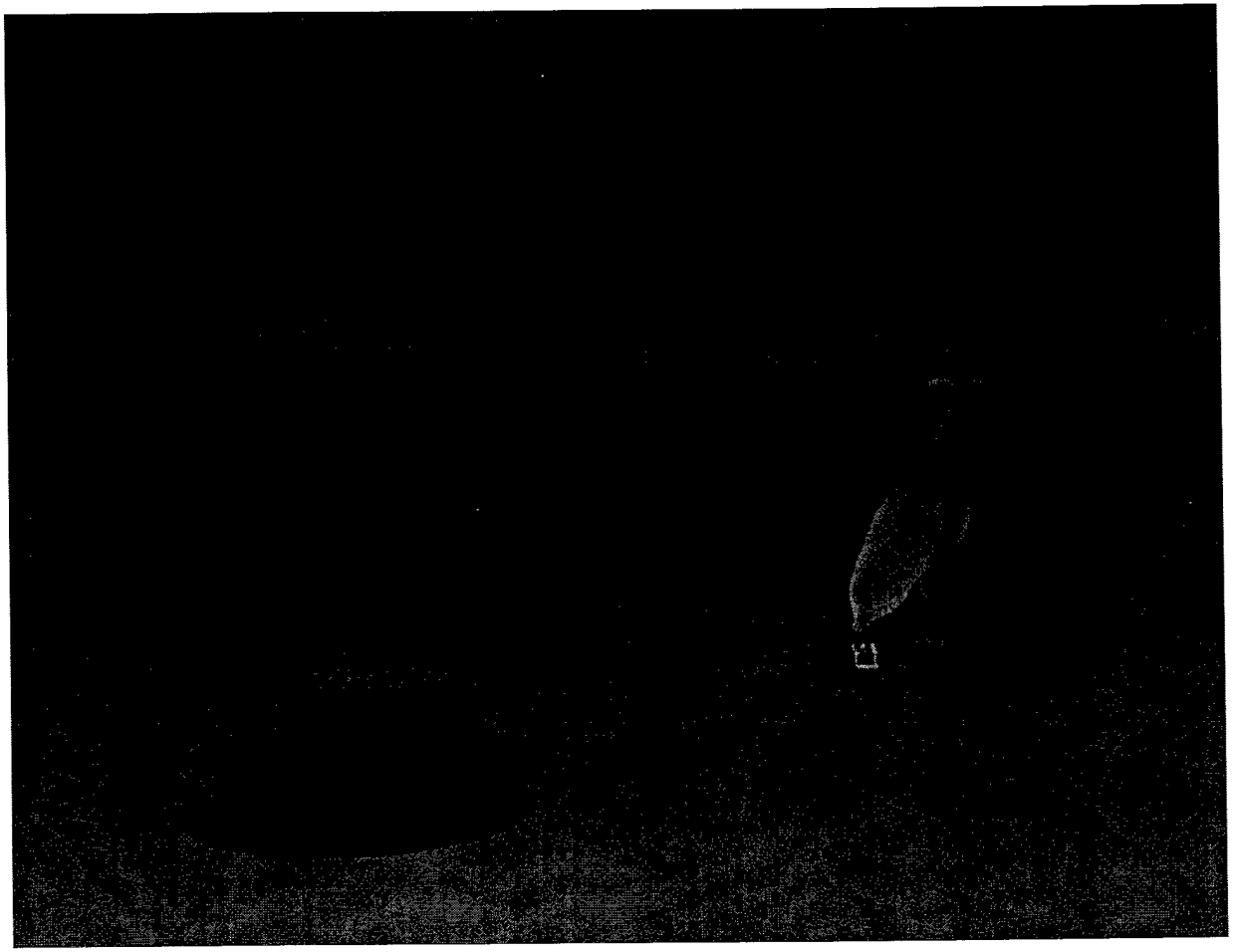
Ex-8 System



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