Fish 'n clicks

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The Virtual Fish Project is currently being developed for an interactive exhibit for the new aquariums at the Otago Museum's Discovery World. The goal of the project is to enhance the experience of visitors to the aquarium.

Visitors will have the opportunity to design their own fish, which will then be "released" into one of the museum's real aquariums. Image capture software, real-time video, augmented reality interface and simple AI are used to make it appear that the virtual fish is interacting with the real fish.

Several interesting design features are posed by this project. We must decide how to allow users to create their own fish, how the fish should be represented graphically, and how they should interact with the real fish in the tank. The project is being developed using Object Pascal in the Borland Integrated Development Environment. Code has been written

to make the virtual fish flee from or chase the other residents of the tank. A live video feed is being used as background. Cartoon fish are being designed for the virtual fish. Users create their individual fish using a touch screen Mr Potato head approach (various options have been trialed for this including freehand, 'found objects' and tangible objects). A database will store the user's created fish so they can be reintroduced into the aquarium at a later time. The final design of the interface will be the result of intensive user testing.

A design constraint of the museum is that nothing should look like a computer. This leads to issues in the approach for 'selling' the experience of the virtual fish interacting with the real fish. Rather than having a computer screen beside the aquarium (where the real fish are swimming obviously sans fake fish) we intend mounting virtual reality glasses in a suspended old-style dive helmet.

	Requirement *The system shall:*	Description
FR 1	*Allow museum to have an interactive software activity*	*The museum provides a learning experience for museum's visitors*
FR 2	*Allow children to create their own virtual fish*	*Features will be provided for children to design their own fish*
FR 3	*Allow the virtual fish created by children to interact with the real fish in the aquarium*	*Video feed of real fish in the tank provides the environment setting in which the virtual fish is released. The virtual fish can either chase or be swim away from real fish.*
FR 4	*Allow the virtual fish saved into database for a period time (one day), and retrieved by children*	*A small database system limits each user to create three fish, that will be stored for a short period of time.*
FR 5	*Provide an opportunity for children to study the fish's habitat*	*By choosing body design of their own fish, and its interaction with real fish.*
FR 6	*Capture the movement of real fish in the aquarium*	*The software will relate exactly to what is happening in an aquarium.*
FR 7	*Allow the virtual fish to move randomly for 1-2 minutes*	*If there is a school class visiting this will allow other children to have the opportunity to create a fish.*
FR 8	*Allow every visitor to create three fish at a time*	*Limit the time an individual can spend on a display.*
FR 9	*Allow the fish to keep alive for another day from the retrieved date*	*The database will store fish to allow children to retrieve the fish during the day of their visit.*
FR 10	*Have a number of virtual fish to move around the screen with the real fish as background even though no fish created*	*If there has been no virtual fish created the display will always have a collection of virtual fish.*
C1	*Should not appear to be a "computer" to users*	
C2	*Must run unattended and be maintenance free*	