

FEATURE SECTION

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SECOND SECTION

Retired engineer designs, builds a pontoon for all seasons

By Jim Wolff

If you live on the Fox River and would like to use a pontoon when the water is low or high or frozen and if you'd like to drive it right into the water from your garage, what do you do?

Well, if you're Berlin mayor and retired engineer Dick Schramer, you design and build a watercraft, combining the best features of a hovercraft and pontoon.

"I have always had in the back of my mind the idea to use the craft as an attraction to Berlin much like the 'Ducks' at Wisconsin Dells," he said. "The stretch of river between Berlin and Princeton could be a tourist attraction that is not ruled out because of low water. With plans for a new Berlin hotel in place, Hovertoont rides between Berlin and Princeton or even to Eureka, Omro or Oshkosh through the Eureka lock could be a unique draw for our communities."

So impressive was Schramer's patented watercraft design that it recently advanced to the final round of the 14th annual Wisconsin Governor's Business Plan Contest, one of 12 to advance out of 172 qualified first-round entries.

The "Hovertoont" is a combination floating pontoon boat and air-cushion supported hovercraft having a frame and a plurality of pontoons pivotally and retractably mounted to the frame for pontoon boat mode, and a second position extending laterally outward from the frame in hovercraft mode. A skirt is attached to and extends

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from the frame, the skirt on a first position being retracted against the bottom of the frame.

In a second position, the skirt extends downward from the frame and forms an air-receiving pocket beneath the frame for hovercraft operation. A first power system moves the frame through water when the pontoons are in their first position. A second power system drives air into the air-receiving pocket when the skirt is in the second or hovercraft position, and a third power system propels the frame in a longitudinal direction when air is driven into the air-receiving pocket.

Confusing? Not if you're an engineer. A few years ago, Schramer saw what a couple Australians had



LEFT: DICK SCHRAMER STANDS next to the prototype Hovertoont nearing completion in his garage. RIGHT: DICK SCHRAMER HOLDS a remote-controlled 1/12 scale model Hovertoont that he designed to demonstrate the vessel's capabilities.



BERLIN JOURNAL NEWSPAPERS PHOTOS

done with a hovercraft in the former Carri-Craft building in Berlin and figured, with a few fans, he could make a pontoon work like a hovercraft. However, the surface area of a pontoon deck was not enough to support 5,000 pounds of weight, so he worked on the idea of rotating pontoons.

He built a 1/12 scale remote control model and applied to the U.S. Patent Office, first receiving patent pending status, then a full-blown patent. A friend who is a patent attorney drew up the application and Schramer did the drawings himself to keep the cost down. He received his patent in 2013.

An across-the-street neighbor, Tony Robinson, expressed some interest in the project since he is associated with Jay Manufacturing, a metal fabricator in Oshkosh. The skirt for the vessel was created by Brian Hegner of Oshkosh Tent & Awning. Hegner's wife, Traci, operates Berlin Trophy. Schramer also reached out to a pontoon manufacturer in northern Wisconsin to provide the deck and fencing.

Working with Jordan Rhodes and the Small Business Development Group at UW-Oshkosh, Schramer developed the Hovertoont website and pinpointed various manufacturers who might show some interest in building the unique vessel. "I would like to keep Wisconsin manufacturers involved," Schramer said. He hopes to have Mercury Marine provide the power plant for thrust.

The Hovertoont's function allows the operator to traverse over multiple water and land conditions. Most lakes and rivers either have shallow areas or have many sandbars which prevent conventional inboard/outboard watercraft from traversing the shallow

areas. This invention allows a pontoon boat to be transformed into a hovercraft that can maneuver over shallow or no-water conditions and yet transform back into a pontoon craft for navigable water conditions.

Standing in the open doors of his garage/shop which overlooks a backyard with a gentle slope to the water frontage, Schramer says, "I built this garage originally to replace a shed, but designed it so I could drive right out on the river, whether the water was low or high or iced over. Once inflated, it will ride 3 1/2 inches in the water until it's powered out of the hole and then the skirt bottom about a 1/2 inch above the water surface and the bag skirt will keep the craft's frame about 12 inches above the surface."

The vessel measures 22' x 8'6" and another 56 inches wider when the pontoons are rotated out. Although it has the ability to travel from a parking lot to the water, the patent is really for the rotating pontoons. To shift from pontoon mode to hovercraft mode, rotating mechanisms are used to rotate the pontoons. The rotating elements are controlled by a hydraulic-powered linkage assembly. A skin retraction and deployment assembly pulls the hovercraft skirt to the underside of the pontoons while in pontoon mode, or for transport on a trailer. The skirt retraction and deployment assembly is controlled by a cable drawn by an electric motor.

The side inlet design for the ducted fan propulsion allows for an open pontoon craft layout with a canvas convertible top and standard pontoon furniture components. The power plant, which can consist of a combustion engine, can be coupled to a hydraulic pump to operate the lift

fans or outdrive unit and forward/reverse transmission which drives the ducted fans. A brake system which can be electric, stops the ducted fans while shifting from forward to reverse and reverse to forward.

Schramer is proud of the parts he scavenged for some of the remote control model fan parts such as paint stirrers from Kitz & Pfeil for two centrifugal fans and a standard pier cap for the fan spinner hubs on the full-scale test unit. The power to the fans is supplied by a drive pulley with a drive belt and belt tension is provided by idler pulleys.

Qualifying for one of the Governor's Business Plan grants would be monumental in terms not only of the monetary value, but for the exposure and marketing opportunities. "If you win, there is lots of help out there," Schramer said. In the first round of the competition he had to write a 550-word essay in four categories. The second round required a 1,000-word executive summary in eight categories. Having now made it to the "diligent dozen," Schramer will have to make a live pitch to judges on June 6.

The summaries in Phase 2 described the core product or service, defined the customer base, estimated the size of the market, identified competition, listed members of the management team and provided key financial data. The 50 entries may be made available for inspection by accredited investors through the Tech Council Investor Networks which has about two dozen angel networks, early stage funds or corporate strategic partners.

Regardless of the outcome, Schramer knows there is a demand for his invention and plans to market it one way or another. His design

could have a major impact on the watercraft market and contribute favorably to Wisconsin's employment. Schramer has formed his own company, Hovertoont, LLC, and more information can be found online at Hovertoont.com.

Schramer grew up on Van Horn Rd. in Berlin on the old 107-acre Andrew Markowski farm purchased by his parents, Richard and Shirley Schramer who also had two daughters, Lynne and Cindy. After graduating from Berlin High School in 1969, Dick attended Michigan Tech where he attained a Bachelor of Science in Electrical Engineering.

His first job was with GTE in Muskegon, MI as an equipment engineer, responsible for engineering central office equipment. After seven years there, he spent the next seven at the headquarters in Ft. Wayne, IN and then the next 17 years at corporate headquarters in Irving, Texas where he met Cris. They recently celebrated their 25th wedding anniversary.

Dick retired in 2006 after 33 years with the company and worked the last five remotely from their home in Berlin. Their new home was built in 2003 and Schramer added a nine-hole golf tract surrounding the house a few years ago.

"I had worked on the boat off and on over the years," Schramer said, "and Cris wasn't all that interested because I was spending so much time on it, but then one night she was watching the TV show 'Shark Tank,' and her eyes lit up!"

So would he consider seeking an appearance on the show? "I've thought about it," he said.

Of course, getting a 22' x 14' vessel on stage might present somewhat of a problem.