Marlborough: STEM projects come to life

MARLBOROUGH – Routine traffic stops can be fraught with danger for police officers.

That's why Marlborough High School sophomores Jack Hathaway, Adrien Andrade-Cain and Keven Melo designed a police-assisted drone aimed at preventing injuries to officers during traffic stops.

An officer would send a drone, which is outfitted with arms, to a car that is pulled over. The flying machine would collect the driver’s license and registration and bring them to the officer. The drone would then be sent back to the car with a ticket or a warning. Having the drone do the work keeps an officer out of harm’s way, the students said.

“Our project was basically something that would reduce the risk of injuries to police officers at a traffic stop,” said Hathaway.

The police-assisted drone was one of 70 projects freshmen and sophomores researched, designed and presented during Friday’s annual STEM Expo.

Several months ago, officials from various city departments and organizations visited the high school to discuss some of the challenges the city is facing. For the past 20 weeks, STEM students have designed solutions to those issues, such as an aluminum culvert to connect the two bodies of water at the Fort Meadow Reservoir.

The concrete culvert under Rte. 85 that connects the Fort Meadow Reservoir has become damaged over time, leaving a steep vertical drop, said sophomore Brittany Jakubiak.

“There was a vertical drop there that was killing a lot of fish,” she said.

Jakubiak and Zakaria Faddi, a sophomore, designed a culvert made out of corrugated aluminum, which has a high resistance to corrosion, won’t develop rust and will not be affected by the friction of the road above.

Sophomores Jose Archila, Jimmy Lopez and Alex Santos designed a new football cleat that has flex points and provides more support for players making sharp, directional cuts. The students say their design will reduce ankle and foot injuries in football players.

“These lunar studs help the player cut up and down,” Lopez said while holding a prototype of the cleat.

Other projects included a new mobile app that will allow Department of Public Works personnel to notify users of road closings and water main breaks. The students are also working on a wheelchair lift that would allow people with disabilities to sit in the school bleachers during games.

“We decided this would work so people could sit up with their families,” said Jonah Hintz, a sophomore.

Dan Riley, Marlborough schools’ STEM director and supervisor of math and technology for grades 6-12, is impressed with the students’ work.

“The students wanted to know what the current problems of practice in the city were that they could help solve,” he said. “I’m so proud of the students. This is what education is all about.”

Jeff Malachowski can be reached at 508-490-7466 or jmalachowski@wickedlocal.com. Follow him on Twitter @JmalachowskiMW.