

INNOVATION

Striking the right chord

Engineering students' design enables girl with cerebral palsy to play guitar

By STEVE BARTLETT

hour.

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THE TELEGRAM

Kristy Lynn March reached out from her wheelchair and plucked the guitar strings and, in doing so, moved Evan Rice.

"That made me feel good," Rice, a Memorial University student says.

"I can't explain it."

March, who just turned 20, has cerebral palsy.

Rice was on the engineering team that designed the guitar stand that enables her to play the instrument on her own.

The young woman has been in the music therapy program at Husky Energy Easter Seals House for a couple of years.

From the get-go, her interest in the guitar was obvious.

In fact, March liked the guitar so much, she'd play for as much as a full



Kristy Lynn March plays guitar during a music therapy session Tuesday afternoon.

— Photo by Keith Gosse/The Telegram

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"We just noticed that her motivation and participation level, and also increased physical movement, and fluidity of movement, increased when she played the guitar," says Susan LeMessurier Quinn, the accredited music therapist who leads the program for Easter Seals Newfoundland and Labrador.

But because of her limited mobility, someone had to hold the instrument for her.

So LeMessurier Quinn applied to the Tetra Society of North America.

It provides customized devices to help people with disabilities, and LeMessurier Quinn asked the organization to design an adjustable stand.

Leonard Lye, co-ordinator of the Tetra Society's St. John's chapter and MUN's associate dean for graduate studies in engineering, looked at the project and thought it was perfect for engineering students.

Eight different groups in James Yang's first-year class took it on.

The design by the group of Rice, Chris Tubrett, Adam Scammell (then a high school student), Jonathan Bennett and Anthony Parrell was chosen as the best.

"The team came up with the most practical and doable project," Lye says.

Drawings were sent for fabrication in the summer, with the hope of having the stand ready for when the therapy program restarted in the fall.

Then came two setbacks — the stand didn't fit as expected and

March broke her left arm, the one she used for strumming.

The engineering students rose to the challenge and redesigned a completely adjustable stand. And extra holes were drilled so the guitar could be repositioned for March to play with her right arm.

The finished product is a couple of feet high and positions the guitar just under an arm's length away.

It doesn't look overly complicated to a non-engineering-type, but then again, neither does a space shuttle.

Rice admits designing it wasn't easy.

"Designing for humans is very difficult," he says. "Everybody's got different ranges of motion, especially someone with cerebral palsy like this little girl. Her motion changes daily, based on how she feels. ... So making it flexible for as many people, as many different scenarios as possible, was probably the hardest."

"Right from the beginning we wanted to do a good job on it," adds Tubrett. "It wasn't just something we wanted to do for marks. We had a genuine interest in it, and to know that we could design something that was actually going to be used to help somebody, that was the true motivation for us."

March has been using the stand to play guitar regularly for the past few weeks. LeMessurier Quinn says it's obvious how much enjoyment it brings.

"She can sit in front of the guitar

for the whole session and play her music independently and without assistance from someone else," the teacher says.

"It's evident it's been successful for her and motivating for her."

And that's rewarding, and motivating for the designers.

"It's really fulfilling. The whole purpose of why we wanted to be engineers, to help people," Tubrett says.

Lye — whose chapter has done about 60 projects in the province since it was founded in 1996 — knows full well such rewards.

He believes it's so fulfilling for the designers because, unlike a mega project, there is a one-on-one connection with a client.

Rice definitely felt that after watching March play earlier this week.

"(I had) an overwhelming sense of pride in what I had done, and knowing that I had helped somebody," he says.

March is not very verbal, but from the look on her face as she played Tuesday, it's pretty obvious the stand is making a difference to her.

"That was the whole point of this project for me," Rice says, "trying to change somebody's life."

"Removing the fact I'm so proud of what I did from a human point, the engineering point was amazing. I gained so much experience."

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Chris Tubrett (left) and Evan Rice (right) were part of the engineering team that designed the stand which enables Kristy Lynn March (centre) to play guitar. — Photo by Keith Gosse/The Telegram