PROVIDED

Michael Starek holds the SenseFly eBee, a fixed wing platform that acts like a miniature plane.

First to fly

A&M-Corpus Christi granted first drone permit for crop research

By Lenae Allen

The Texas A&M University Agrilife Research and Extension Center in Corpus Christi was granted the first Certificate of Authorization permit to use drones, also called unmanned aerial vehicles or UAVs, to conduct agricultural research on crops.

With the permit from the Federal Aviation Administration, the Agrilife Extension office at Corpus Christi plans to research how quantities of nutrients, irrigation and drought and diseases affect crops in real time.

Juan A. Landivar, resident director of the Corpus Christi Agrilife Extension office, said the FAA finally granted authorization nearly a year after they applied for it.

The UAV used, called a SenseFly eBee, is a fixed wing platform that acts like a miniature plane. The drone is composed of a flexible plastic material. The two cameras used to gather images and information are a normal red-green-blue camera for images, Corpus Christi Agrilife Extension has also submitted paperwork applying for a helicopter-type drone permit.

The goal for using drones in agriculture is to ultimately improve crop yields and livestock management by integrating agriculture with precision databases and remote sensors on the drones.

Michael Starek, the research's specialist on Geographic Information Science and Geospatial Surveying Engineering, is using gathered data to see how the sensors on the drone process information.

"The idea is really to look at the potential of the technology. We want to look at the flight design, what wind does when you fly and how does that affects the data accuracy that you get," Starek said. "We're trying to figure out the most efficient ways to collect this data and process it. Ultimately we want to progress the potential of this technology for the end users — agriculturalists and farmers."

There are two types of cameras mounted onto the UAV itself, and from the images collected researchers are able to determine either geospatial imaging or near-infrared wavelengths. From this data, researchers are able to not only monitor growth of crops in a 2-dimensional image, but

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> **Michael Starek,** research specialist

3-dimensional imaging as well. Near-infrared imaging can indicate which plants are not faring as well as others.

The main crop in consideration with this research is cotton, and the main problem of the cotton industry is root-rot.

"Remote sensing has proven to be very useful in identifying field areas where the crop is stricken with this disease," said Alex Thomasson, engineering professor. "Once those areas have been identified, an effective fungicide that has recently been approved for use by EPA can be applied in subsequent years in only those areas, greatly reducing overall cost and minimizing environmental risk."

Plans to eventually use software on drones to determine things such as phenotyping in crops and rangeland forage density are underway. Other crops that the Agrilife Extension hopes to work with include citrus orchards, in order to study the effects of a disease called citrus greening, and vegetable crops.

"I think the real advantage is ultimately farmers can go out and get the data when they need it," Starek said. "One day I imagine there will be swarms of these things. The farmer can just go out in the morning and fly before they're about to water their thousands of acres of crops, or know where to drop insecticide. They'll be able to say, do this area and not this area. It will really increase efficiency."

ACADEMICS

Tim Lai — THE BATTALION

Provost Karan Watson speaks at the Vision 2020 forum.

Forum fields opinion on Vision 2020

Faculty retention discussed at meeting

By Trey Reeves

The Office of the Provost, Faculty Senate and Council of Principal Investigators co-hosted the second of four scheduled forums Thursday discussing the university's internal and external strengths and weaknesses.

The series, open to all faculty and staff, focuses on receiving input from all colleges and divisions in preparation for the university's final push toward its lofty Vision 2020 goals. Thursday's meeting consisted of university employees voicing their concerns to Provost and Executive Vice President Karan Watson.

To open the meeting, Watson addressed one of the major concerns — research expenditures and their impact on the general student body.

"We are a university. We are not a research institution," Watson said. "When you look at the plans, you have to realize that we can't stop being us. We are going to have to focus on where to use resources because we don't have an infinite amount."

That lack of infinite resources might not seem troubling to an institution that has an endowment of more than $850 million, but Watson said having a large amount of money at the disposal does not condone irresponsibility.

"We tend to have it in our minds that we are strategically throwing out everything on our wish list and getting done everything we possibly can," Watson said. "That's not strategic planning. Strategic planning is just as much about strategically deciding what we can't do right now."

Some in attendance, like Engineering Technology department head Jorge Alvarado, had their own issues to bring to light. Alvarado said that he hoped students choosing Texas A&M for their doctoral studies would not be neglected or overshadowed.

"I think what we need in the end is a comprehensive plan. We want good student to apply and come to A&M, and once they do, we want to make sure they have the resources to succeed," Alvarado said.

Michael Arnold, associate department head of horticultural sciences, said officials should make an effort to hire and keep younger professors and staff in the prime of their careers.

"When I sit in faculty meetings I see a lot of people with gray hair like me," Arnold said. "We haven't hired as many professorial candidates in recent years, and I think if we're going to reach some of these objectives, we're going to have to do it on the backs of some rising stars. We need new, younger faculty in the ranks."

Faculty retention has been a hot topic at recent meetings, and Watson addressed some of these concerns, saying that while some ideas look great in individual areas, they don't always help the big picture of the university as a whole.

"What we don't always discern well is there are always opportunities to hire new faculty, but is it netting us more than it was before?" Watson said. "We don't want to put faculty members in the situation where they feel like they have to go get another offer, and we don't want to play the game with those that are going to do it over and over again."

The last two meetings will be held on March 13 and April 1 in Rudder 601.

INDUSTRY

Allison Bradshaw — THE BATTALION

Representatives from engineering companies answer questions from students at the forum discussion following the Civil Engineering Professional Day.

Engineering students learn state of career field

By Teja Kondapalli

Students filled rooms to capacity, some standing in the aisles, to hear several prominent civil engineering experts discuss the state of the industry Thursday at the Civil Engineering Professional Day.

Experts spoke to how the civil engineering profession has developed, expected trends for the near future, and what companies expect of fresh graduates.

Robin Autenrieth, the department head of the civil engineering department, said the event began as a way to give students a way to hear from engineering practitioners.

"Professional's Day started several years ago in the department and it has proven to be an excellent opportunity to bring practitioners on to campus and to give our students' exposure to the different areas of civil engineering," Autenrieth said.

Speakers represented each specialization area in the civil engineering department, such as construction, structural and geotechnical engineering technology first impacted civil engineering design, but now is present in three dimensional modelling, simulations, and structural analysis.

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EATING DISORDER
CONTINUED

women — specifically younger ones — engage in social comparison from these images. They internalize impossible or improbable beauty ideals commonly seen in media and become dissatisfied when they can't achieve them, leading to psychological or behavioral symptoms related to eating disorders.

Elisa McNeill, a health education instructor, said the largest issue all eating disorders are centered around is a need to have a sense of control.

"A lot of times, things are spiraling out of control and they truly believe that there is not a lot they can do about it, but they do have the ability to control their food intake," McNeill said.

McNeill said in some cases the praise that those with disorders receive after losing weight can contribute to further reinforcement of behavior.

"They say, 'Well hey, I can get this reinforcement again,'" McNeill said. "You see this pattern kind of spiral around itself and then they spiral down further."

McNeill said common disorders include anorexia nervosa and bulimia.

"You also have what is called physical activity bulimia where the food isn't the issue but overexercise is the issue," McNeill said.

Both Ramasubramanian and McNeill advocate media literacy as a way to combat negative body image pressures from the media.

"It boils down to being a literacy issue when you look at an ad, or you look at a piece of propaganda to sit and analyze," McNeill said. "Where is the source? Who is funding that? What is the message that they're portraying? Whose best interest is it in the end?"

Ramasubramanian said the public needs to realize that much of media is driven by the consumer industry. Ramasubramanian said media consumers must reflect on

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>
> **Elisa McNeill,** health education instructor

who is shaping these messages.

"There is a 'fantasization' in the mind of men of beauty also creating these images," Ramasubramanian said. "Now, it's the curvaceously thin body type like the Lara Croft type of body."

Ramasubramanian said this hyper-sexualized, unrealistic standard of beauty is part of a cultural, systemic problem rather than a series of isolated incidents.

"There is an entire genre of media that celebrates thinness and punishes those that are considered 'fat,'" Ramasubramanian said.

Both Ramasubramanian and McNeill believe education across many scales are integral in combatting both negative body issues and spreading awareness of eating disorders. McNeill said in the field of health education, the idea of approaching health issues with a multi-layered focus is called 'the social ecological model.'

Meghan Windham, a dietician at Texas A&M, specializes in adolescents with eating disorders, and said the first step is noticing something is wrong.

"The first step is just saying 'Something doesn't feel right and this is a concern to me,' and that's a huge first step for most people," Windham said.

Windham emphasized the opportunities available for students on campus.

"We have what we call an eating disorder interdisciplinary team and we work very closely, myself and one physician here and then the counseling center," Windham said.

Windham said for most patients, admittance and trusting the help of medical professionals can be the two most difficult steps.

"There's that, 'There is no dumb question,' and there's no one symptom for eating patterns that most professionals who have worked in this field haven't seen," Windham said. "So don't be fearful or afraid to seek that guidance."