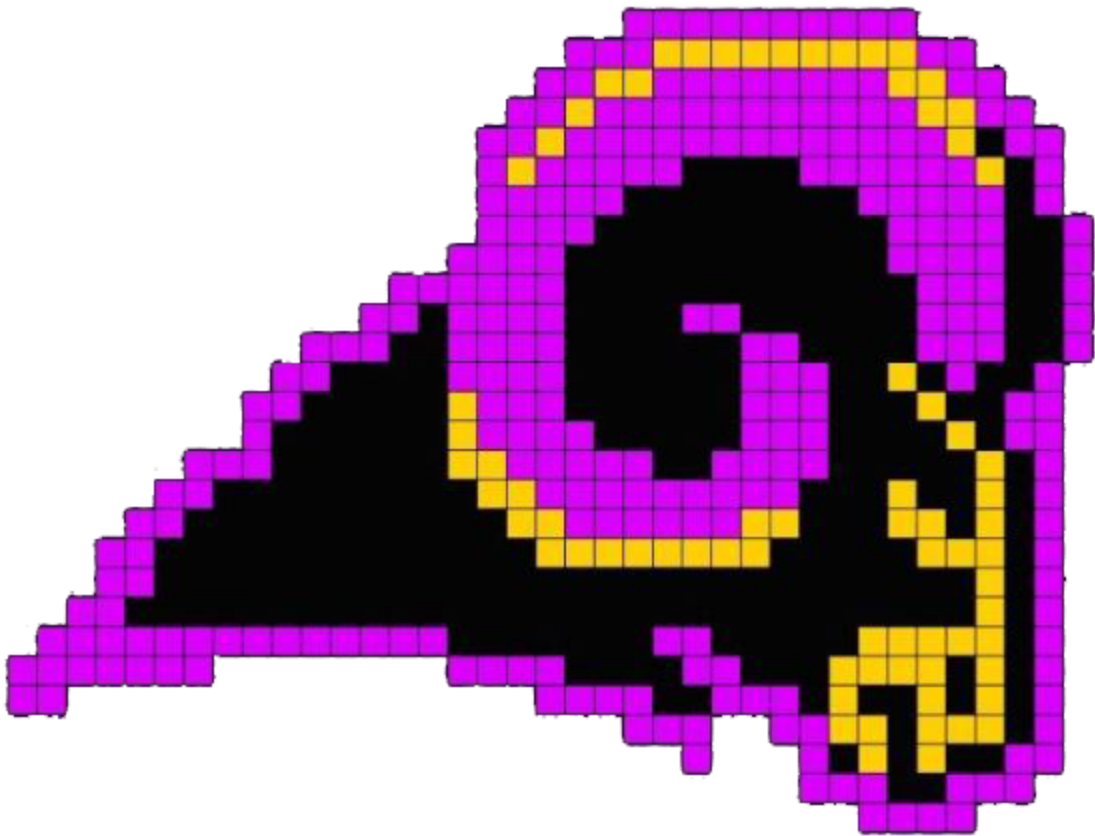
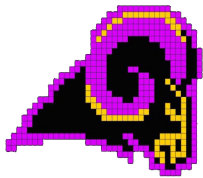


8-bit RAMs
FRC Team #6401, Clarkstown High School North

Business Plan





Clarkstown North 8-Bit Rams *FIRST* Team 6401

Established 2016

1. Our Team's Mission

Our team's mission is to provide an opportunity for high school students to use science and technology skills to prepare them for real-life application and to bring STEAM (Science, Technology, Engineering, Arts, and Math) programs to the local community, elementary and middle schools, and to foster interest in STEAM and *FIRST* at a young age. As our team grows and learns, we intend to do the same for the students in our school district and community through team outreach.

2. Team Summary

FIRST Team 6401 was founded in 2016 by 4 students of Clarkstown High School North. Clarkstown North is home to the team and we plan to include students from Clarkstown South as well. The name 8-bit RAMs was inspired by North's mascot, the ram, and the form of computer data storage. 8-bit is an amount of RAM, but it is also a pixelated form of animation used in 80's video games such as Pac-Man, Galaga and Dig Dug, which is the reason behind the team's pixelated ram logo. The North team currently has about 40 student members and 2 mentors. Along the way we have gained valuable resources and tools that aided our growth as a team.

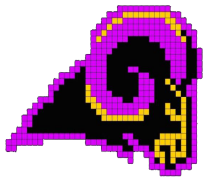
Location: Clarkstown High School North, New City, New York

History

FIRST Robotics has been around since 1989. Since then, there haven't been any FIRST Robotics Competition(FRC) teams in Rockland County. But beginning in 2016, FRC team 6401 has got its feet of the ground and just a year later it helped to start team 6969. The idea for a team started when a fellow Clarkstown parent had suggested that Clarkstown North bring back the Robotics Class so that her son could participate in the class instead of going to Clarkstown South (which has the class). This idea was brought to the attention of Mr. and Mrs. Albrecht, who saw the idea and proposed something

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Clarkstown North 8-Bit Rams *FIRST* Team 6401

Established 2016

even better. They both were very familiar with the FIRST program, as their two sons had participated on FLL Team 4313, and Mr. Albrecht is Head Mentor for the Ossining O-Bots (FRC Team 4122). They thought it would be a great idea for Clarkstown to start an FRC team, as FRC has proven to be helpful in promoting STEM. On May 3rd, 2016 Mr. Albrecht and his family alongside a group of students and parents interested in a Robotics Program presented at the Clarkstown Board of Education Meeting. At the meeting, Mr. Albrecht explained the FIRST program to the Board of Education and the requirements for starting up the team and Mark Albrecht(freshman), Jack Welsome(sophomore), Shawn Kuriakose(freshman), and Michael Brill(sophomore) presented photos from FRC competitions and discussed the benefit of a team in Clarkstown. The Board went on to approve the team. Clarkstown STEM Coordinator Dr. Matthew Schuchman mentored the students throughout the formation of the team, and Clarkstown North Physics Teacher Mr. Brendan Burkhart eventually took the role of Head Mentor. Jack Welsome became President and Mark Albrecht became Vice President. With hard work and dedication to the team, team 6401 made it to the world championships for robotics in Saint Louis due to receiving the Rookie All-Star award at Hudson Valley Regional. The World Championship competition provided them with valuable experience and motivation to launch the next year's season, and to be more successful than ever. This opportunity was life changing for all of the students who were able to attend the trip and it brought attention to the team and its values.

3. Program/Budget Description

Our Team is organized into many positions and sub-teams that all strive to meet specific goals:

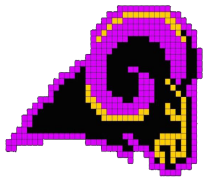
CEO

The role of the CEO is to oversee the Robot Captain, the Team Captain, the Treasurer, and Financial Officer. The CEO is responsible to organize meetings and events and coordinate with team mentors. This person is vital to keeping management and organization headed in the right direction with as much efficiency and communication as possible.

Robot Captain

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Clarkstown North 8-Bit Rams *FIRST* Team 6401

Established 2016

The Robot Captain is in charge of overseeing all robot positions including the Mechanical lead, Electrical lead and Programming lead. The Robot Captain is vital in maintaining communication and direction between the sub-teams in order to ensure that the robot is being built in the correct order and that it will fit together nicely as all of the teams contribute their work to the robot.

Robot Vice Captain

The role of the Robot Vice Captain is to assist the Robot Captain with their duties. Also the Robot Vice Captain will work with and help robot sub-teams including Mechanical, Electrical and Programming. The Robot Vice Captain will work on more specific problems while the Robot Captain is busy with more general tasks.

Team Captain

The role of the Team Captain is to oversee all sub-teams involved with outreach and communication. These positions include: Awards Submission, Videography, Social Media/Photography, Attendance Officer, Website Design, Graphic Arts. The Team Captain has the responsibility of encouraging and facilitating outreach programs while keeping tabs on the social roles of the team.

Treasurer

The role of the Treasurer is to track the money flowing in and out of the team. This includes donations, sponsorships, fees and other expenses in addition to working with the mentors to buy parts and tools. The Treasurer is also responsible for maintaining and updating the Business Plan.

Financial Officer

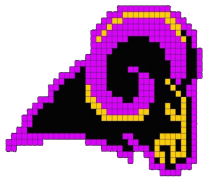
The Financial Officer is responsible for raising money for the team. This includes fundraising, researching sponsorships, and contacting businesses. They are also responsible for grant submissions.

Mechanical Lead

The Mechanical sub-team is responsible for building the robot. This involves design, use of tools and machines, and the construction. Some aspects the Mechanical Lead

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Clarkstown North 8-Bit Rams *FIRST* Team 6401

Established 2016

will be responsible for include the completion of the robot's drivetrain, robot frame. and its game functions.

Electrical Lead

While maintaining constant communication with the programmers, the Electrical Lead is responsible for the team that handles the electrical components of the robot. This includes the wiring, the battery, the circuit breaker, the motors and the electrical base.

Programming Lead

The Programming Lead is responsible for the team that will give the robot the ability to understand commands given by a remote. They always need to be in contact with the other building groups to make sure that all of their ideas will be possible with the robot's design. The Programming Lead will be responsible for ensuring the success of the programming in both tele-op and autonomous modes.

Awards Submission

The head of Awards Submission is responsible to write and submit the proper material for award submissions. This important sub-division reflects the non-mechanical aspects of the team.

Videography

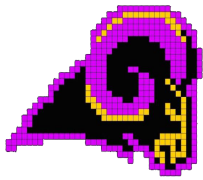
Throughout the season the leader of Videography will record video of both the building of the robot and our team's outreach events. At the end of Build Season they will assemble a team video to be shown to the Chairman's Award Judges.

Social Media/Photography

This person is responsible to take photos of the team throughout the season and manage the team's social media accounts. The Social Media/Photography leader is also responsible for understanding and spreading the legal information on the photos that he/she is allowed to take and post on social media.

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Clarkstown North 8-Bit Rams *FIRST* Team 6401

Established 2016

Attendance Officer

The Attendance Officer is responsible to take attendance at all meetings and to keep a running account of each member's attendance

Website Design

The leader of the Website Design team is responsible for the creation of the team website and to ensure it is updated and improved often.

Graphic Arts

The leader of Graphic Arts is responsible for the creation of team logos and will make posters that positively represent our robotics team in a creative and supportive way. The Graphic Arts Officer is also responsible for the design of the team's banner to be hung at competitions. Graphic Arts designs the sponsor brochure each year as well, and assists the team's Media Team and the Video Team to enhance their efforts with designs and animations.

Apparel Officer

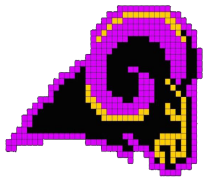
The Apparel Officer is responsible for team's apparel. The Apparel Officer will be in contact with the Financial Officer to ensure that all sponsorships are appropriately featured on apparel and banners.

Our team is also lucky to have help and support from diligent mentors:

Mentor Roles	Role Description
Programming	Teach and work with programmers
Marketing	Help with sponsorships and keeping a budget
Writing	Assist students with applying for awards
Electrical	Teach electric group how to wire a robot and organize an electrical board
Graphic Design	Help with creating signs, making t-shirts, designing logos

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Publicity	Assist with social media sites and creating a website
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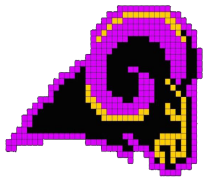


After Winning the Regional Competition

4. Program History

The 8-Bit Rams began organization for the 2016 - 2017 rookie season in September 2016. In partnership with our mentoring team, the Pascack Pi-oneers Team 1676 and the Ossining O-Bots Team 4122, we learned about *FIRST*. With your support last season, we won the 2017 Rookie All-Star Award at the Hudson Valley Regional which qualified us to compete in the *FIRST* World Championship in St. Louis.

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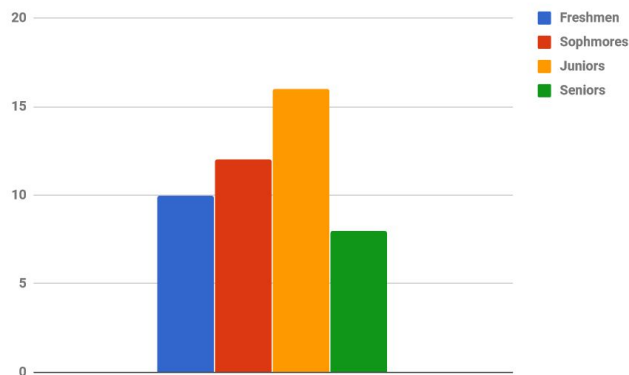
Clarkstown North 8-Bit Rams *FIRST* Team 6401

Established 2016

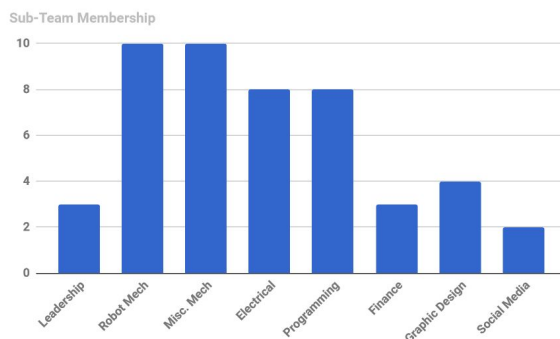
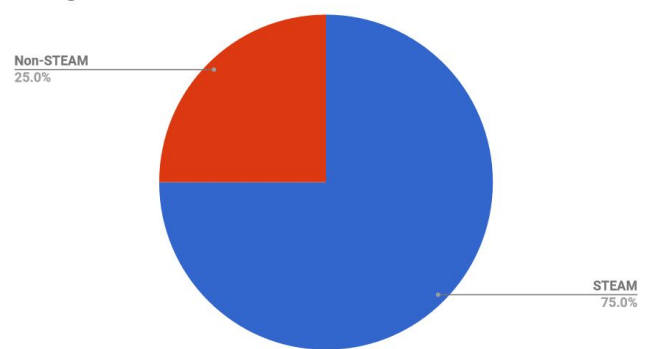
5. Restricted and Unrestricted Funds

Donations, sponsorships, and funds raised by and for the 8-Bit Rams will be deposited to a school account for the direct use of the team to pay expenses.

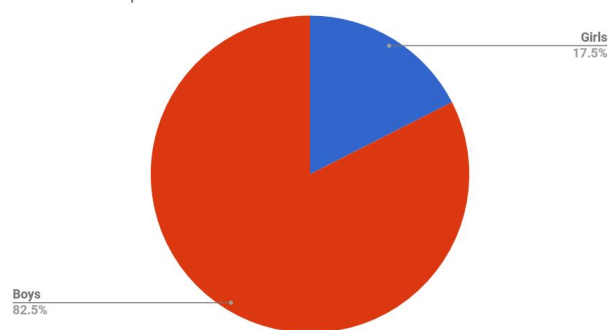
6. Program Evaluation



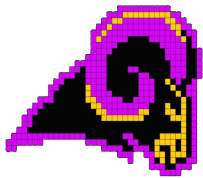
College Tracks for Graduates from 2016-2017 Season



Membership Gender



At the beginning and end of each season we take statistics, as shown above, to evaluate the logistics of our team membership. This information is useful because we can track the progress of our student membership throughout continuous seasons. Our goal is to be as inclusive as possible for the students in our school and this method allows us to track our progress. We want to develop a friendly and inviting environment with a diverse group of people who have many different interests within the STEAM



Clarkstown North 8-Bit Rams *FIRST* Team 6401

Established 2016

field. Statistics are important because they help the team to analyze its successes and failures.

7. Promotion

The 8-Bit Rams is promoted in their school and community in the following ways:

- Social Media- Instagram, Twitter and Facebook
- Posters throughout tech rooms and hallways
- Recognition on School Website
- Club Fairs

8. Program Benefits

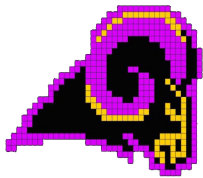
According to research conducted by *FIRST*, participants are “significantly more likely to show gains in interest in STEM, STEM careers and an understanding of STEM fields.” Especially on our team, members who were new to the STEAM field became much more interested throughout the season. There were many cases in which people voiced their interest in STEAM and this may also be why almost all of our non-graduated members returned to the team this year. Another finding by *FIRST* is that “87% of participants plan to take a more challenging math or science course.” Our team provided our members with many challenges throughout the season and the reward and accomplishment gained from surpassing these obstacles contributed to the ambition of many of our members to seek further challenges in these STEAM related subjects. Graduates who have participated in *FIRST* are “2.6x more likely to enroll in an engineering course their freshman year” and “over “75% of *FIRST* alumni are in a STEM field as a student or professional.” The *FIRST* program also helps to develop skills for its participants, such as communication, teamwork, organization, planning, leadership, conflict resolution, time management and problem solving.

9. Team Impact/Outreach:

Along with starting a brand new *FIRST* team in the Clarkstown Central School District, team 6401 has been involved in multiple outreach events during the 2016-17 season. We went to Woodglen and Link elementary schools to teach the students how to design, build, and program Lego Mindstorms robots that they will use at the middle school if they decide to participate in the robotics club. Felix Festa Middle School hosted

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Clarkstown North 8-Bit Rams *FIRST* Team 6401

Established 2016

a Technology Showcase at which team 6401 taught Lego Mindstorms as well as demonstrated our FRC Steamworks robot. We also met with New York State Senator David Carlucci to show him how much our team has accomplished and aid in his decision to support the growth of robotics in the Hudson Valley. Team 6401, along with four other FRC teams in the Hudson Valley, organized and participated in a special VIP Night at the Hudson Valley Regional Competition to spread FIRST throughout the Hudson Valley. This year we have already implemented a district wide elementary school First Lego League competition run by members of the club. This will further provide young students exposure to robotics and the STEAM field. In addition we have established a programming class at our local community center for students in grades 4 through 8 taught by three club members.

10. Board of Directors

The team is governed by Team Officers and overseen by Mr. Brendan Burkhart, Robotics Team Advisor, and the Clarkstown Board of Education

Team Officers:

CEO - Jack Welsome

Robot Captain - Mark Albrecht

Club Captain - Shawn Kuriakose

Treasurer - Peter Smiley

Business Leader - Jackie Fine

11. Other contributors

NASA

Duke of Oil

McLaren Engineering Group

Orange and Rockland

Vitane Pharmaceuticals

Dee Maria's Pizza

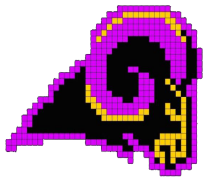
Westrock Window Fashions

Primavera Pizza

Anna's Bakery

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Clarkstown North 8-Bit Rams *FIRST* Team 6401

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12. Population Served

The 8-Bit Rams *FIRST* Team 6401 is available to the 1432 students in Clarkstown North High School. There are 10 freshmen, 12 sophomores, 16 juniors and 8 seniors on the team for the 2017- 2018 season. The team mentors *FIRST* LEGO League Teams at 8 local elementary schools such as Lakewood and Woodglen. They also mentor programming classes at the Community Learning Center expanding the amount of students served by our team to approximately 5000 throughout the school district.

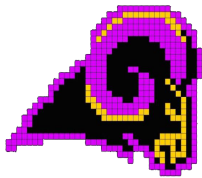
13. Fundraising

Current Team Fundraising Ventures:

The 8-bit RAMs have a three pronged approach to their fundraising, personal, corporate, and events. The management of the team has asked each and every one of its participants to go home and ask their parents and their parents' places of work to donate as much as they can, because every donation, no matter the size is important to us. Second, corporate fundraising means one of two things, either the fundraising crew goes to businesses and personally asks for donations, or emailing and contacting businesses and asking for grants. We have received grants from multiple companies and from the FIRST corporation. We are in the process of planning events for the near future by seeking grants, talking to local businesses and receiving personal donations.

Future Team Fundraisers:

In the immediate short term, the 8-Bit Rams plan on holding fundraisers such as coin drops and restaurant fundraisers. In the time period throughout the next few months, our goal is to contact as many businesses in our local area to gain much needed support from our community. In addition, we would like to apply for more grants and sponsorships. We plan on reaching out to companies in our home of Clarkstown and companies in communities that surround it. In the long term, we plan on gaining large scale fundraising events and establishing a base of companies that consistently donate to our club. This will be in junction with the 8-Bit Rams organizing events in order to individually recognize the companies that choose to sponsor us. Over the next



Clarkstown North 8-Bit Rams *FIRST* Team 6401 Established 2016

few years we aspire to form a solid base of money that we can keep in case of any emergency thus alleviating some anxiety.

14. Team Budget

Income:

Orange and Rockland Grant
NASA Grant
Moe's Fundraiser
KEAN Engineering

Cost:

\$15,000.00
\$6,000.00
\$100.00
\$250.00

Total: \$21,350.00

Expenditure:

Registration and Kit of Parts
Robot Materials
Travel for Events
Robo Rio

Cost:

\$6,000.00
\$496.00
\$1,200.00
\$435.00

Total: \$8,131.00

Additional Opportunities for Support: In-Kind Donations:

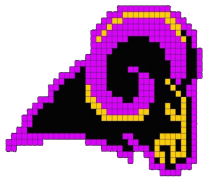
Items:	Number Needed	Single Item Cost	Final Cost
Rolling Tool chest	1	\$700	\$700.00
Total:			\$700.00

15. Why is our team unique

Our team is different from other teams because we are still a fresh team with a lot of energy, passion and excitement along with the valuable experience gained from a successful season and participation in a world championship. A number of our members are returning from last year and are better equipped and experienced than ever before. Our president is on the Student Advisory Council for the Hudson Valley Regional to help plan the event from a student's perspective. Our robotics season has not stopped since last year, as we have been planning, learning and outreaching ever since. The goal is to

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Clarkstown North 8-Bit Rams *FIRST* Team 6401

Established 2016

help prepare for the upcoming season and to gain as much experience as possible from FIRST events.

16. Recognition

Diamond Sponsor- \$1,000+

- Your logo will be prominently displayed on...
 - Extra Large:
 - The Robot
 - The Team T-shirt
 - The Team Banner (displayed at events and competitions)
 - The 8-bit RAMs Website: front page and link to your website on sponsorship page

Platinum Sponsor- \$500 -\$999

- You will be prominently displayed on...
 - Large
 - The Team T-shirt
 - The Team Banner (displayed at events and competitions)
 - The 8-bit RAMs Website: logo, link, and name to your website on sponsorship page

Gold Sponsor- \$200 -\$499

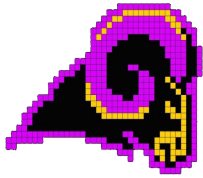
- Your logo will be prominently displayed on...
 - Medium:
 - The Team T-shirt
 - The Team Banner (displayed at events and competitions)
 - The 8-bit RAMs Website: front page and link to your website on sponsorship page

Silver Sponsor- \$100 -\$199

- Your logo will be prominently displayed on...
 - Medium:
 - The Team Banner (displayed at events and competitions)

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Clarkstown North 8-Bit Rams *FIRST* Team 6401
Established 2016

-
- The 8-bit RAMs Website: link and name to your website on sponsorship page

Bronze Sponsor- \$25 -\$100

- Website: Name of individual/business on sponsor page

Sponsorship Information:

Checks should be made payable to: Clarkstown High School North, Robotics Club

Please contact the team for more information

Donations may be tax deductible

Mailing Address:

Clarkstown High School North

Attn: Clarkstown North Robotics Team

151 Congers Rd.

New City, NY 10956

With your support, we hope to fund our entrance into the world championships. We look forward to not only competing in the biggest robotics event in the US, but to also spread our team outreach into the community. Support of the Clarkstown North Robotics Team is not only beneficial for our group of high school students, it will individually impact many students as we continue to grow the STEM culture in our district.

We are looking forward to a continued relationship with you this season and in the future. Thank you for considering our request.

Sincerely,

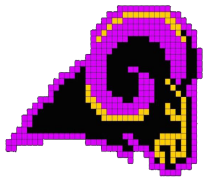
Jack Welsome

Chief Executive Officer

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