

INTRO: EXPLORE THE PROJECT!

The Tech Like a Girl

Project Box

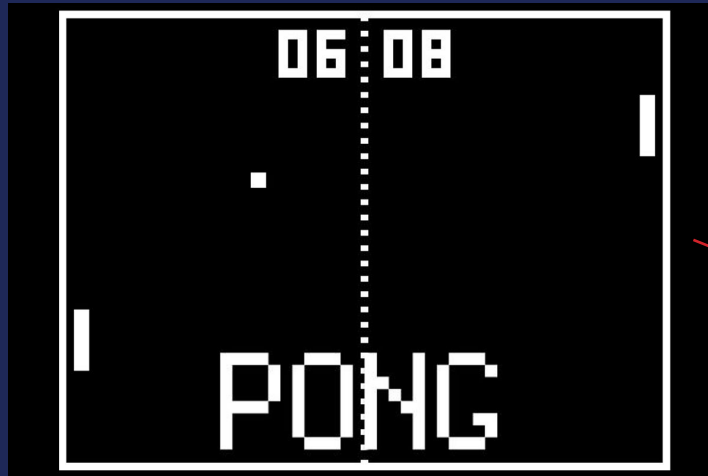


INTRO: EXPLORE THE PROJECT!

WELCOME! IF THIS IS YOUR FIRST ENGINEERING PROJECT OR YOUR 1 MILLIONTH WE ARE SO HAPPY YOU JOINED US. ALL ENGINEER'S WILL TELL YOU THE KEY TO A WELL DONE PROJECT IS PROPER PLANNING. IN THIS FIRST INSTALLMENT WE WILL SPEND SOME TIME PROTOTYPING, WIREFRAMING, AND TESTING OUR COMPONENTS BEFORE WE GET INTO ANYTHING ELSE! WE'VE GOTTEN A LITTLE AHEAD OF OURSELVES, FIRST THINGS FIRST, PLEASE CREATE YOUR BADGE FIRST! INCLUDED IN YOUR BOX ARE STICKERS AND A MARKER TO PERSONALIZE YOUR TECH LIKE A GIRL INC. ENGINEERING BADGES!



WHAT ARE WE MAKING?



PONG IS ONE OF THE EARLIEST ARCADE GAMES. IT IS A SIMPLE 2-PLAYER GAME OF VIRTUAL TABLE TENNIS. THE GAME CONSISTS OF 2 PADDLES, 2 SIDES, 1 SCORE DISPLAY, AND 1 BALL. THE GOAL IS TO NOT LET THE BALL HIT YOUR SIDE OF THE TABLE USING YOUR PADDLE. YOU ARE ONLY ABLE TO MOVE YOUR PADDLE UP AND DOWN, YOU CAN NEVER MOVE Laterally. IF THE BALL HITS YOUR SIDE, YOUR OPPONENT GETS A POINT! THE FIRST PLAYER TO 10 POINTS WINS THE GAME! THIS GAME WAS ORIGINALLY MEANT TO BE A TRAINING EXERCISE FOR A NEW ENGINEER AT ATARI, SO WE ARE GOING TO BE USING IT AS A TRAINING EXERCISE FOR YOU OUR NEWEST ENGINEERS!

PAPER PROTOTYPE

INCLUDED IN YOUR BOX IS A PAPER PROTOTYPE OF THE GAME! THIS IS A GREAT WAY FOR YOU TO EXPLORE GAMES OR ALGORITHMS BEFORE YOU WRITE THEM IN CODE. RELATING YOUR SOLUTIONS TO REAL LIFE, CAN BE EXTREMELY HANDY AS AN ENGINEER. SO YOUR FIRST TASK IS TO PLAY A ROUND OF PONG USING THE PAPER PROTOTYPE. WHILE PLAYING, USE THE NEXT PAGE OF YOUR BOOKLET TO FILL IN THE RULES OF THE GAME AND THE ACTIONS YOU WILL NEED TO PROGRAM FOR EACH PIECE. SOME EXAMPLES ARE WRITTEN FOR YOU TO GET YOU STARTED



P.S. YOU CAN FIND OUR SOLUTIONS TO ALL OF THE WORKBOOK PAGES IN THE BACK OF THE BOOKLET.

RULES & RESTRICTIONS

1. EACH PLAYERS PADDLE MAY ONLY
MOVE UP AND DOWN

2.

3.

4.

5.

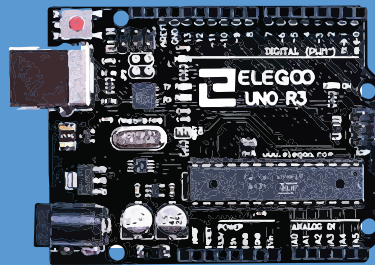
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7.

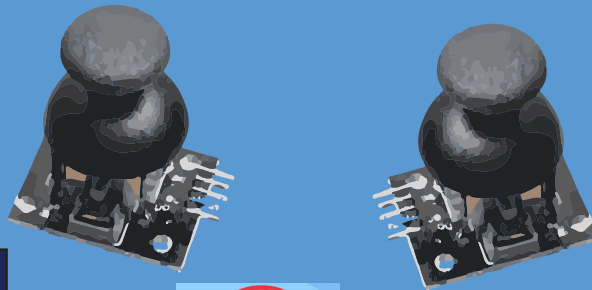
OK...SO WHAT...WHAT NOW

NOW THAT YOU KNOW THE INS & THE OUTS OF PONG, WE CAN DISCUSS HOW WE ARE GOING TO CREATE YOUR OWN VERSION OF PONG. WE HAVE DIVIDED THIS PROJECT INTO 3 PARTS.

PART 1:
CREATE &
TEST
THE
CONTROLLER



PART 2:
DESIGN &
CREATE
YOUR GAME

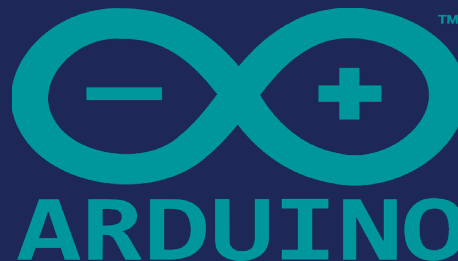


PART 3:
PUT IT ALL
TOGETHER
AND PLAY!



PART ONE: CREATE YOUR CONTROL-

THE FIRST STEP FOR YOU WILL BE TO WIRE UP AND TEST YOUR CONTROLLER. YOU WILL COVER THE BEGINNINGS OF ELECTRONIC CIRCUITS AND GET AND SEND BASIC COMMANDS TO THE ARDUINO. YOU'LL EVEN GET TO TEST BY PLAYING THE



PART TWO: CREATE YOUR GAME

NEXT YOU WILL USE PYGAME AND PYTHON TO
CREATE YOUR OWN VERSION OF PONG! YOU WILL
COVER THE BASICS OF COMPUTER PROGRAMMING:
VARIABLES, LOOPS, AND EVEN FUNCTIONS!



PART THREE: MIX IT ALL UP!

THE FINAL STEP WILL BE TO CUSTOMIZE YOUR CONTROLLER TO YOUR PARTICULAR GAME. WE WILL COVER USER INTERACTION AND HOW TO FINE TUNE OUR PREVIOUS CODE TO OUR NEW GAME. YOU WILL GET A CHANCE TO CUSTOMIZE YOUR GAME AND ADD EXTRA FEATURES!

1. EACH PLAYERS PADDLE MAY ONLY
MOVE UP AND DOWN

2.

3.

4.

5.

6.

7.