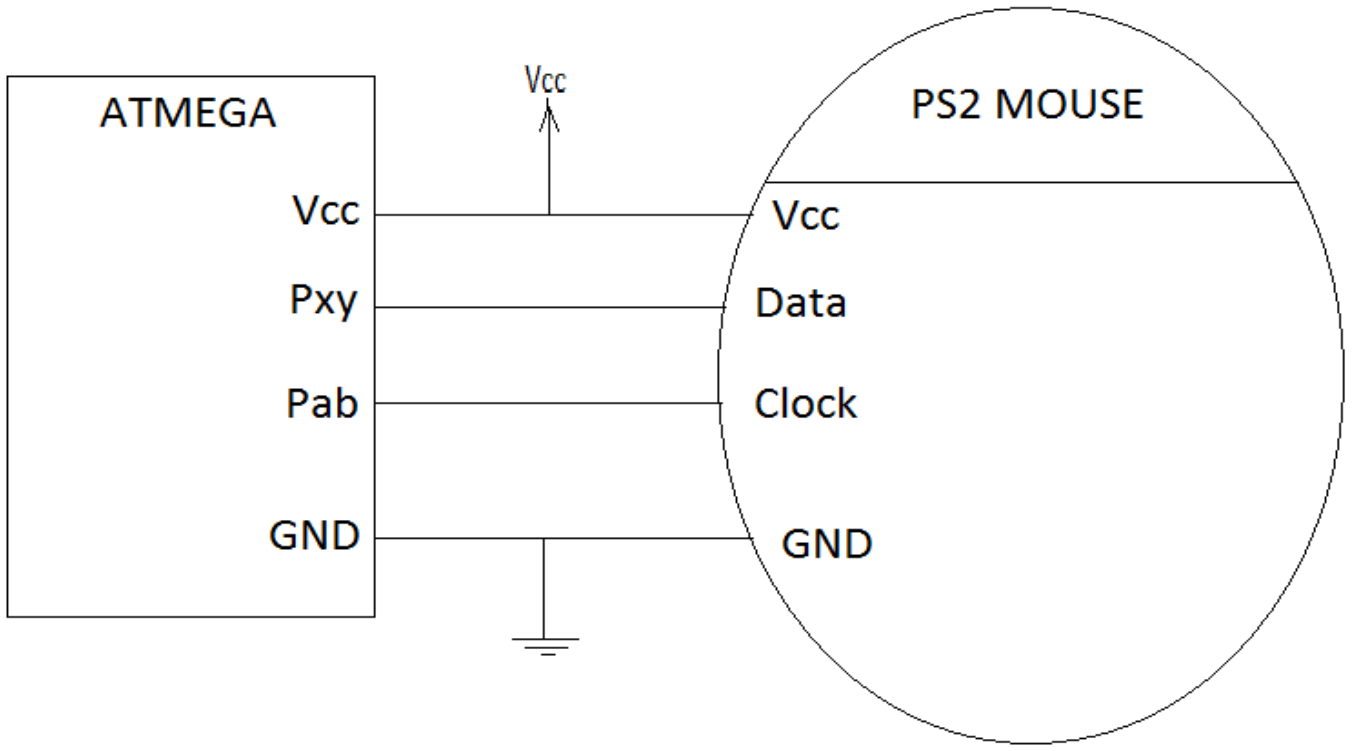
PS2 MOUSE INTERFACE WITH MICROCONTROLLER

This tutorial describes the way of interfacing a PS2 mouse with a microcontroller (atmega 16/32) and getting the mouse output on LCD.

CONNECTIONS



PS2 mouse can be connected to atmega using two type of connectors:

1.5-pin DIN connector

2. 6 pin mini connector

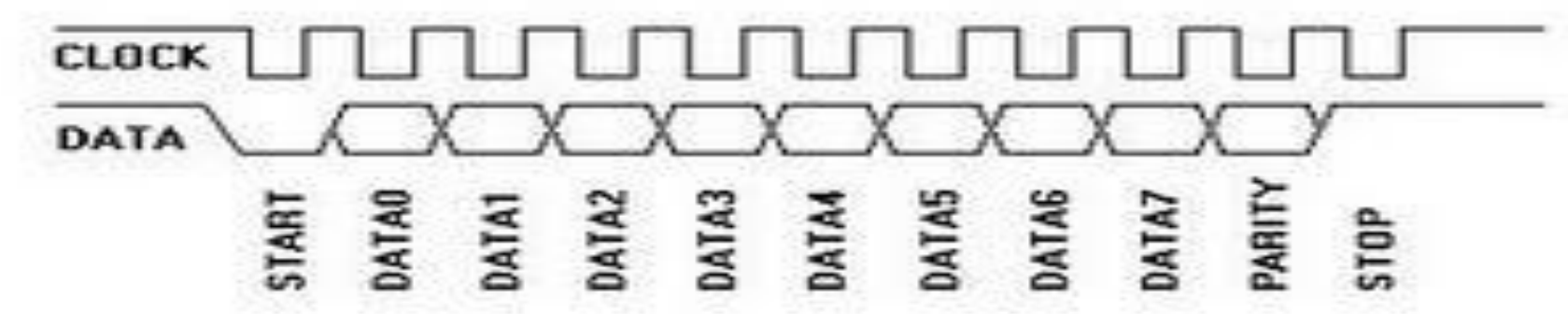
Connector pin arrangement

AT Computer		
Signals	DIN41524, Female at Computer, 5-pin DIN 180°	6-pin Mini DIN PS2 Style Female at Computer
Clock	1	5
Data	2	1
nc	3	2,6
GND	4	3
+5V	5	4
Shield	Shell	Shell

PS2 ALGORTHIM

The PS2 port uses an in-out clock to transmit and receive data.Data is send and received and send synchronous to this clock.Mouse generates the clock signal and data is read at the falling edge of the clock.

Data is: 1 start bit,8 data bits, 1 parity bit, 1 stop bit



For the host to send a command to mouse, it first brings the clock low for at least 100 microseconds.then it brings data line low.then clock line ir released.data line is reset before sending the command after which the data line is released.Then the device wait for data line and clock line to be low. After every successful command an acknowledgement is received by the host from the mouse.

DATA BYTES

On mouse moves the mouse sends 3 bytes of information through the ps-2 port. The contents of the data packet is described below in the diagram:

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 1	Y overflow	X overflow	Y sign bit	X sign bit	Always 1	Middle Btn	Right Btn	Left Btn
Byte 2	X movement							
Byte 3	Y movement							

Byte 1 contains information on the direction the mouse moved wrt its previous position, status of the mouse buttons (0 for not pressed and 1 for pressed) and the x and y overflows which are set if the counters go past 255. Byte 2 and 3 contain information regarding the x movement and the y movement.

For detailed information refer: *http://www.computer-engineering.org/*

C CODE FOR MOUSE INTERFACING

Mouse is working in remote mode.

In the given code:

int variable	Data
mouseX	X co-orinate
mouseY	Y co-ordinate
isLeft	Left click
isRight	Rifgt Click
isMiddle	Middle Click

Pxy(data line pin) is PINB.1

Pab(clock line pin) is PINB.0

A LCD is also interfaced to get the state of mouse(click and postion) on it.

The link for the c code for ps2 mouse:

https://docs.google.com/document/d/1gYyS4Z4tWFrQ01jmDc9xl8kwchjnAfCA4aQYuJhpgN8/edit?hl=en_US