Access and Explore!
Using Environmental Control throughout the Transition Process

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www.gatfl.gatech.edu

www.amacusg.org

Accessibility Made Smart

AMAC creates practical solutions that work, with a focus on utility, ease of use, and high quality.

- **Accessibility Consulting** focuses on organizational accessibility needs with evaluation, technical assistance, customer support, and website accessibility solutions.

- **Braille Services** produces customized projects from both print materials and electronic text including partial books and chapters or graphics only using cutting-edge technology.

- **Captioning Services** makes classrooms, meetings, labs and other audio environments fully accessible for deaf or hard-of-hearing.

- **Professional E-Text Producers** provide high-quality e-text in many formats such as PDF, DOC, DAISY, and HTML.

- **Certified Assistive Technology team** provides on-site and remote assessments, demonstrations, training and technical assistance for education, work, and daily living environments.

- For more information, please visit our website at www.amacusg.org

Tools for Life Mission

We're here to help Georgians with disabilities gain access to and acquisition of assistive technology devices and assistive technology services so they can live, learn, work, and play independently in the communities of their choice.

Today's Session

- The move from classroom to "real life" can be a major transition. Students go from being surrounded by their teachers, peers and helpers regularly, to being by themselves more often and needing to learn strategies for independence. Creating an environment in the classroom that enables learning independence can help ease the transition process into postsecondary education or community living.

For Handouts: http://www.gatfl.gatech.edu/tflwiki

Objectives

- At the end of this session, you will be able to:

    - List 3 environmental control protocols and their effectiveness.
    - Identify, assess and implement 2 solutions for individuals to interact with their environment.
    - Name 3 affordable solutions to implement in the classroom that can be used throughout the transition process.

For Handouts: http://www.gatfl.gatech.edu/tflwiki

Agenda

- Critical Questions to Ask
- Defining Switch Access & Types
- Switch Tips, Strategies & Solutions
- Computer Access
- Daily Activities & Recreation
- Environmental Control Solutions Using Google & Android
- Smartphone Access
- Apps
- Q & A

Begin with the End in Mind!

Critical Questions #1

- What do you want to control?
  - Computer
  - Game
  - TV
  - Lights
  - Appliances
  - Chair
  - Door
  - Faucets
  - Smartphone

Critical Questions #2

- What access points/switches can be automated?

What is a Switch?

- A switch is a simple device that has two states - on and off - just like a light switch.

- Switches come in a variety of different shapes and sizes and are operated in different ways.
  - Push motion
  - Grasp
  - Pull
  - Suck (sip & puff)
  - Blink

Switch Sites

- Hands
- Head
- Mouth
- Feet
- Lower Extremities
- Upper Extremities
- Neural Signal

Ideal Switch Sites

- Volitional control
- Small
- Controlled
- Sustained pressure
- Controlled release
- Most isolated volitional spot

Places to Avoid

- "The Big Wind Up"
  - Smaller moves increases speed and accuracy
- Reflexes that can be hard to release
- Muscle strength
  - Hit multiple times a day
- Cheek
- Temple area

ASL

HOME · PRODUCTS · TECHNICAL SUPPORT · COMPANY · EDUCATION · MEET OUR CLIENTS · FUNDING

Products / New Products

ASL brings innovative products to our clients! We are here to help each client reach their full potential – our team creates products and designs as a direct result of the needs of those we serve. Our goal has always been independence and equal rights for those we work with....

Driver Control Packages

ASL 138 Extremity Control Joystick

100 Series

Electronic Switches

ASL 215 Round Proximity Sensor with Mono Port and 24 Volt Connector

200 Series

Electronic Switches

ASL 215 Round Proximity Sensor 3 Pin

200 Series

Specialty Products & Adaptors   Specialty Products & Adaptors   Specialty Products & Adaptors

Critical Questions #3

- Where would you mount the ECU?

  - Wheelchair

  - Table

  - Desk

  - Countertop

Critical Questions #4

- How will you access/control the ECU?

    - Direct
    - External
    - Switch(es)
    - Scanning
    - Voice

Critical Questions #5

Are there any cognitive issues affecting number of choices, memory, etc.?

Critical Questions #6

- Will physical and cognitive abilities be changing over time?

    – Traumatic Brain Injury
    – Neurodegenerative Processes

Eli's Situation - Needs

- I want to control my lights, telephone, and all of my audio and video equipment -- basically, I need it all. As I move around the classroom, it would be ideal if I could do all of that from my wheelchair.

Eli's Situation

Applied Methodology:

1. Lights, Telephone, Audio/Video Equipment
2. Lights
3. Wheelchair mounting
4. Voice Control
5. No cognitive impairments
6. Stable abilities over time

Eli's Situation – AT Solutions

- Pilot Pro
  The Pilot Pro offers advanced voice controlled ECU functionality.

- X-10 modules
  Various X-10 modules control lighting and appliances.

- Sero!™ telephone
  Easily-controlled compatible telephone.

- Latitude™ ARM and triangle plate
  Use the Latitude ARM and small triangular mounting plate for a steady position and easy adjustments.

Pilot Pro

Combining the best in Infrared and X10 remote controls, the Pilot Pro brings the freedom of natural speech to appliances throughout the home. With the Pilot Pro, spoken commands are used for remote control of numerous devices in multiple environments. Control a television, telephone, lights, door systems, and more with simple, intuitive commands like, "TV... On" or "Channel... Up".

Pilot Pro is portable and programmable, meeting the needs of users at home, in the office, or within a healthcare facility. And its accessible - with switch scanning and 96 unique commands, arranged to suit the specific needs of your environment. Contact an AbleNet ECU dealer to see how Pilot Pro can deliver powerful access at the sound of your voice.

- **Key Features:**
- 96 different words available in menus
- RF and IR interfaces for all devices and X-10 controls
- Programmable, adjustable menus with support for macros
- Designed for complex home automation systems
- Voice training with no computer required
- Convenient graphic display
- Auditory and Visual feedback
- "Direct Learning" infrared for easy programming with your existing remotes
- Supports external microphones
- Latest generation speech recognition technology
- Internal microphone

X-10 modules

X10 communicates between transmitters and receivers by sending and receiving signals over the existing electrical wiring in your home. The X10 Transceiver then sends commands to the X10 modules. A separate X10 module is required for each appliance you want to control.

For example: This is a on/off control of 3 prong appliances for up to 15 amps.

Sero Telephone

- The Possum Sero! provides, for the first time, a loud speaking, remote control telephone and answering machine with AAC communication aid functions. The Sero! can be operated via the majority of Possum, Infrared enabled home controllers and Communication Aids.

- **Communication (AAC)**
  50 User-recordable phrases (each 60 seconds long) allow people with partial or no voice to communicate crucial messages over the telephone.

- **SSI© (Secure Spoken Identity)***
  Secure Spoken Identity, using caller ID services, will speak the name of the person calling (if the caller's details are in the phone book). Unsolicited calls can be diverted straight to the answering machine.

- **Emergency Dialing Features Include:**
  • Remote activation of the emergency dial number via the Possum Jive!, Primo!, or any other appropriate infrared device.
  • Automatic Help Call function which dials up to 8 contacts until a response is registered.

- **Key Features**

- Hands free calling

- Remote Control via IR

- Emergency Dialing

- Speakerphone

- Answering Machine

- Recordable Memos

- Communication Aid Feature

- SSI© (Secure Spoken Identity) - Voice announcing caller ID*

Latitude™ Customizable Mounting System

- The Latitude™ Customizable Mounting System provides an ideal balance of strength, durability, and flexibility. The Latitude™ARM makes it easy to handle just about any mounting challenge. From a standardized base interface, to quick-release levers, to a universal plate connector, the Latitude™ARM gives you all the options of a mounting system that costs much more.

- **Key Features**

- **Plate Connector:** Allows for quick change of products

- **3D Joints:** All joints allow 360˚ of rotation on any axis (any direction) Unique design provides superior clamping strength Joints can be moved to any position along a tube

- **Quick Release Handles (Levers):** Allows for easy positioning or adjustment without tools Pull and rotate handle to desired position after adjustment

- **Standardized Base Interface:** Allows for quick transfers between different base types and locations (Ex. Wheelchair to Bed Rail)

Accessing the Environment

Presentation 2: Human-Robot Interaction: The Potential to Support Successful Aging

Philips iCat

GATSBII-Georgia Tech Service Bot with Interactive Intelligence

There is much potential for robots to support older adults in their goal of independent aging. However, for human-robot interactions to be successful, the robots must be designed with user needs in mind.

In the Human Factors and Aging Laboratory, Roger's lab is conducting research in the nascent field of older adult–robot interactions. In this presentation, Rogers will provide an overview of the needs, capabilities, preferences, and limitations of older adults. She will then discuss our current and planned research on the design of robots to support older adults and health care providers. Our focus is on understanding the interactions among user characteristics, robot characteristics, and the context of the interactions (e.g., task demands).

Presentation 3: Aware Home Technology to Support Aging-in-Place

Aware Home at Georgia Tech

Imagine if your home were "aware" of your activities so that it might help you remember what it was you went into the kitchen for or whether the visitor at the front door is someone you know or even what the proper procedure is for performing a recently learned home medical procedure. An aware home is not from the world of science fiction—it is within the realm of science. Such technological developments have the potential to enable older adults to maintain their functional independence and to "age-in-place." They also have the potential to support families caring for children with developmental disabilities or individuals recovering from illness or injury. An innovative research program at Georgia Institute of Technology is focused on developing psychological and computer science to support home activities.

Tongue Drive System

- Wireless device that enables people with high-level spinal cord injuries to operate a computer and maneuver an electrically powered wheelchair simply by moving their tongues
- dental retainer embedded with sensors
- detect movement of a tiny magnet attached to the tongue
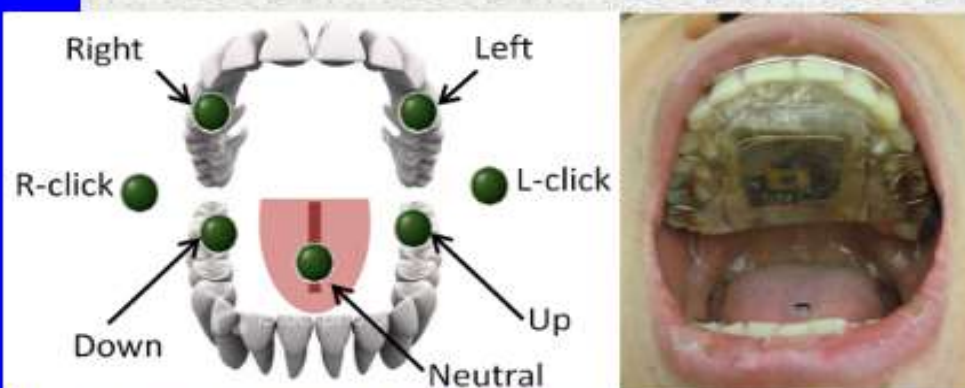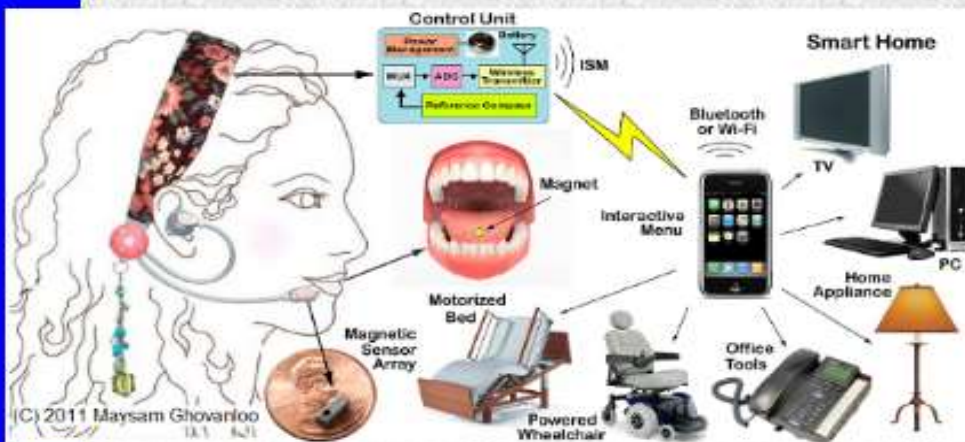- Testing with iPods and iPhones

- *GA Tech*
- *Shepherd Center and Rehab Institute of Chicago*
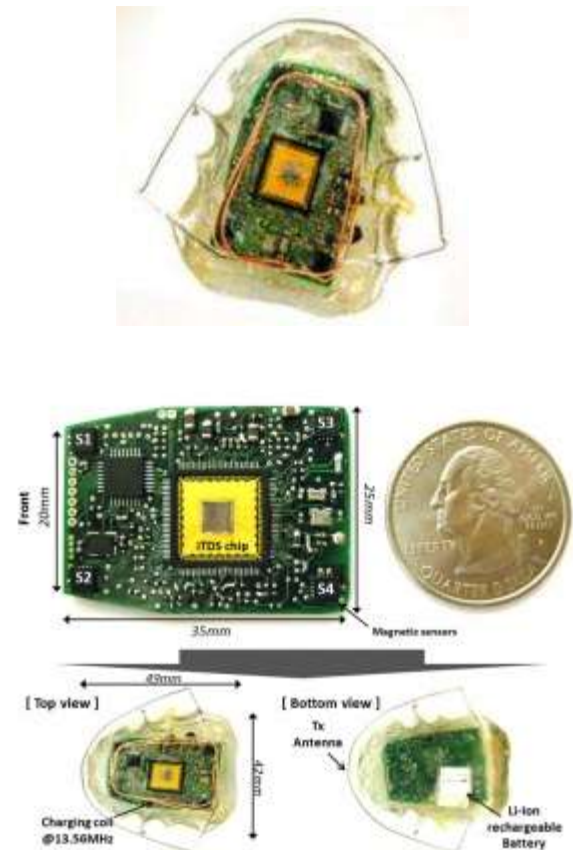
School of Electrical and Computer Engineering

Intraoral Tongue Drive System (iTDS) Technical info

Clinical Trial Completed

If you have tetraplegia, live in Atlanta, GA or Chicago, IL, and interested in

VGo Telepresence Robot

- Enables a person to replicate themself in a distant location and have the freedom to move around as if they were physically there.
- Reduces travel costs
- School
- Hospital
- Work Remotely

People with Disabilities in the Work Place

Sector: Business

VGo increases productivity and effectiveness while lowering costs by enabling a person to get to a location instantly and easily. VGo is not designed as a replacement for in-person interaction but rather as the next best alternative to "being" in the workplace. VGo also eliminates the deficiencies associated with other video solutions that are locked to a TV or computer monitor by providing 100% remote controlled mobility.   delete that

In addition to "being" at work from home, VGo can help people who can get to the workplace, but who cannot practically move about the facility or campus. A VGo can be used to enable a person to move around in one part of the facility while they are physically in another.

The benefits of using VGo in the workplace include

- Getting to places previously inaccessible increases opportunities
- Freedom of movement increases personal interaction with others
- Quality of life improvements by expanding the work and social environments
- Costs can be reduced by lowering or eliminating select transportation expenses, and by communications and speeding decision making

Kubi

- Telepresence
- $499
- Dock your tablet for remote pan and tilt controls
- See and interact with people during a conference call
- Use any Video Client: Skype, FaceTime, Google Hangout, etc.
- Cloud Control

Joystick to Mouse Emulator

- Allows any joystick to point & click just like a mouse.

- Joystick can position the mouse cursor and enables the joystick buttons to operate as mouse buttons.

- Provides computer access and control via joystick to do with limited mobility.

Button Switch

- The ASL 305 Button Switch is a momentary switch.

- Activation button the size of a dime

- Requires medium force for activation.

- Enables easy access to multiple wheelchair functions (tilt, recline, power legs, elevate, etc.)

Ultra Light Switch

- The ASL 314 Ultra Light Switch has a very light activation force and low profile.

- Ideal for people with limited movement or weakness.

- Attach with a reusable sticky base or 2 screw mounting holes for secure placement.

Heated Mouse

- Warms hands
- Good for someone with arthritis or MS
- High/ low/ off for heat
- Low voltage; safe for computer use

DXT Fingertip Vertical Wireless Mouse

- Ergonomic Relaxed Neutral Wrist and Hand Position
- Precision Grip for Accurate Navigation
  - Small muscles and joints of the fingers have higher processing abilities
- Instantly Switches Between Right and Left Hand

Switch and Joystick Access

Contour Roller Mouse

- Ergonomic alternative to the traditional mouse that sits directly in front of your keyboard
- Does not require your back, neck, and shoulders to be involved in mouse work
- Grip-less
- Built-in wrist supports
- Placed in the middle of the recommended work zone, eliminating long and repetitive reaching movements

Eyegaze Edge

- Eyegaze System
- Control computer and tablet using your eye
- Environmental Controls
- Communication

TOBII Eye Mobile

- Hands free access to Windows 8 Tablets
- Navigate, communicate, play using your eyes
- Supports Switch and Touch Inputs
- Small and Lightweight
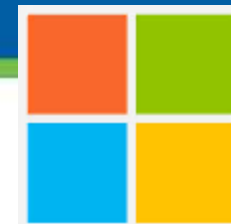
Microsoft Speech Recognition

- Dictate and edit
  - dictate words into word-processing programs or to fill out online forms in a web browser
- Control computer
  - run programs and interact with Windows
- Built-in
- Train computer to voice
- Need microphone
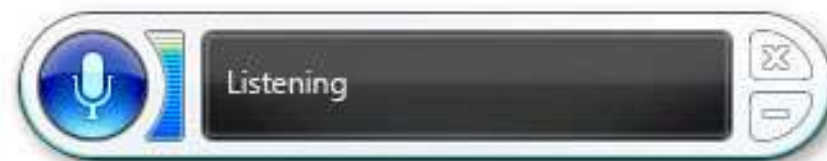
Dragon NaturallySpeaking

- Speech recognition software

- Control your computer with your voice

- Works fast, 99% accuracy

- Dictate documents

- Search the web

- Precise and quick training

Google Glass

- Wearable Technology
- Bluetooth Connection
- Navigate
- Make a Call
- Send a Message
- Take a Picture or Video
- Get the News
- Search
- Google Play Music
- Google Now
- Be Social
- Internal Compass
- $1500

The Future of this OS is Limitless

- Google has the futuristic ambition and the funds to take Android to unprecedented heights. In many areas — such as predicting what users will do next.

- Google Now knows that in the morning you're getting ready for work and will tell you about the traffic.

Google Now

Environmental Controls

User Interfaces

Vera gateways can be controlled with a number of different interfaces.

- First Party Software
  - PC
  - MAC
  - Smartphone App

- Third Party Software
  - Smartphone Apps
  - TASKER! (Android only)

Tasker

Tasker is a phone automation application that allows you to really unleash your android device's capabilities.

Tasker in a nutshell is a program that tells your device "When this happens, do this!"

- "When something is plugged into the headphone jack, open my music app"

- "When I open the navigation app, turn GPS on"

- "When my phone is connected to this cell tower, turn on wifi and connect to my home wifi"

More on Tasker

Plugins for Tasker allow you to access other features of your phone and interface with other internet connected devices.

- Autovoice – Allows you to set up custom voice commands and turn always listening on

- Autocast – Enables you to control a Chromecast device on your TV

- Autovera – Interfaces with your Vera gateway

Old Imperium Still Kicking

- X-10s
- Open Sesame Door
- Imperium and Mobile Link (No longer sold)
- But still bringing independence!

Lyndell Hill
Assistive Technology User

Fighting to get family with VERA

- Escape out of nursing facility
- iPad for Communication and control
- Vera – Z-Wave Throughout
- Kwikset Door Deadbolts
- Thermostat – Z-Wave
- Future – Door Opener
- Relay Service
- Ready for court hearing…

Automatic Feeder

- Mealtime Partner
- Different mounts
- Battery operated
- Bowl tops controls amount of food
- Control Pause time between spoonful
- Adjustability of the spoon

Switch-Adapted Digital Camera

- one switch to turn camera on/off

- second switch for snapping the pic

- start/stop video

- http://rjcooper.com/digital-camera/

- $349; includes mounting arm

Logitech Harmony Remote

The Logitech Harmony Remote product line has recently added a hub and an app for your mobile device that allow you to control your entertainment devices.

Multiple tasks, such as turning on the TV, switching it to the appropriate source, turning on the cable box and the audio receiver can be programmed into a single button.

Touchpad

Touchpad is an Android app that makes your mobile device a new way to control your Windows PC. Users can use their device as a replacement for the mouse.

The app includes multitouch gestures making it easy to emulate dragging and dropping on the touch screen.
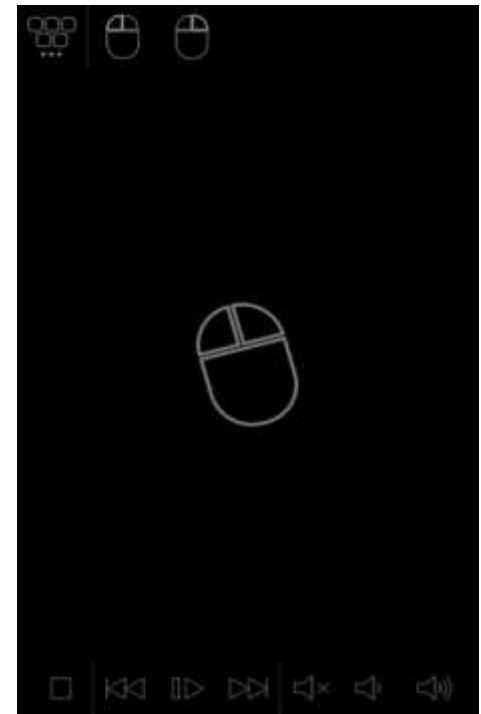
Xpadder

Xpadder is a free program for Windows that allows you to configure the inputs on most videogame controller any way that you like. You can have media controls assigned to different buttons so you can easily pause or control volume.

The mouse as well as the keyboard are easily emulated on the controller as well.

MOGAnywhere

- Enables you to play video games on your Apple or Android phone.

- Great for gamers with limited mobility

- $29.99 to $99.99

Prestorian APPlicator

- Inclusive TLC
- Bluetooth
- Access switch accessible apps
- Up to 4 switches
- Paired to iPad/ iTouch/ iPhone
- 64 ft operating range
- Programmable functions

Tecla Shield

- Wireless device that controls smartphones and tablets using your external switches or the driver controls of your power wheelchair

- The only switch interface that works with both iOS® and Android™ mobile devices.
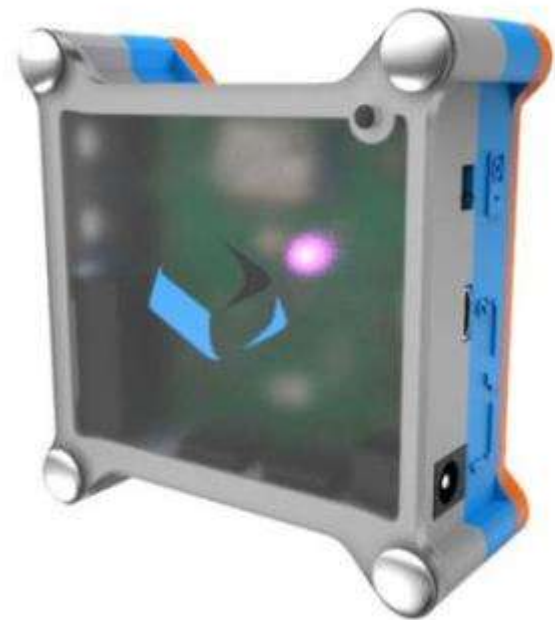
TFL AppFinder
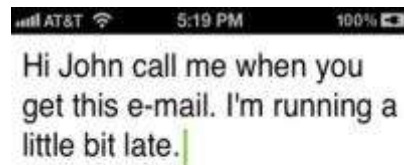
Search by:

✓ **App Name**

✓ **Categories**

- Book
- Education
- Environmental Adaptations
- Hearing
- Cognition, Learning, Developmental
- Navigation
- Personal Care and Safety
- Productivity
- Communication
- Therapeutic Aids
- Vision

Dragon Dictation
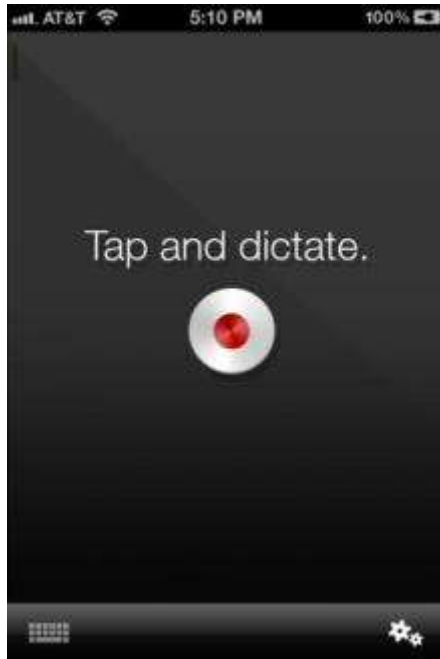
- Voice Recognition
- Free
- Dictate notes, emails, Twitter, and Facebook
- Supports many languages
- Cut, Copy, Paste
- Android
  - Dragon Go!
  - Dragon Hands Free Assistant

Touchmouse

- By Logitech turns your iPhone or iPod touch into a wireless trackpad and keyboard for your computer

- Works over Wi-Fi

- Need to download the Touch Mouse Server software

Swype

Swype is an alternative keyboard for the Android mobile operating system. For some, it is easier to type words by dragging their finger across the keyboard than it is to press each key individually.

Swype words by drawing a path through the letters rather than tapping each key.
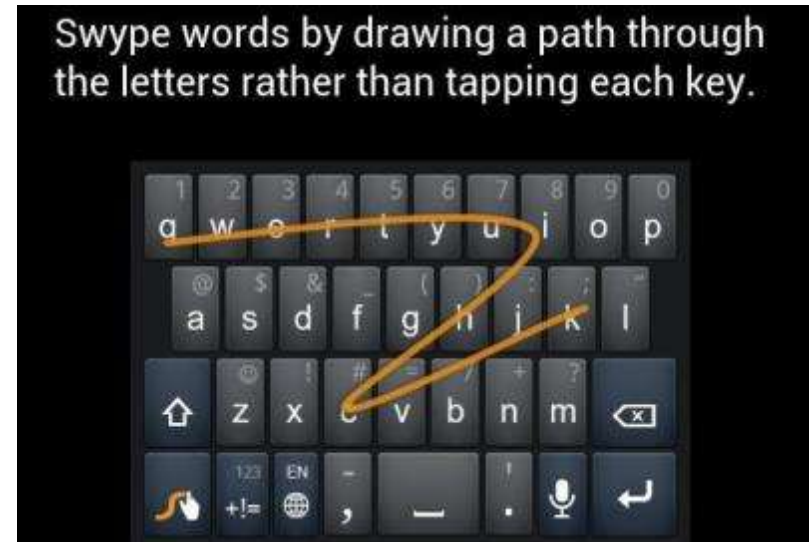
Remote Mouse

- Turns your mobile phone or tablet into a wireless remote control for your computer

- Fully simulated mouse

- Magic trackpad

- Multi touch Gestures

- Landscape mode

Fully simulated mouse and trackpad
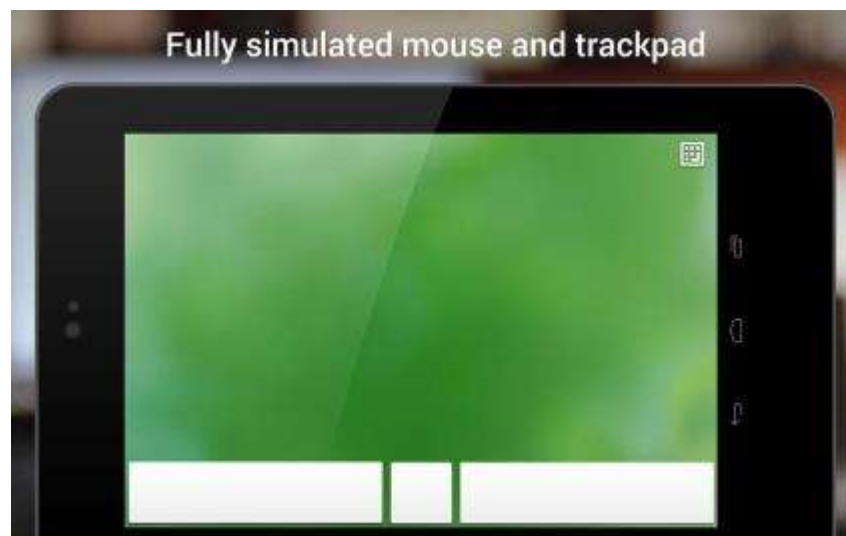
Questions

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