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## Humanitarian Use Form

Applicant(s): Microsoft Corporation  
Application Category: Information Technology

*Instructions: In no more than five pages, please address the following criteria for Humanitarian Use. If your application covers Humanitarian Research, please use the Research form instead.*

### Humanitarian Use

1. *Subject Matter – the applicants’ technology, which is claimed in a U.S. utility patent in force at the time or a pending U.S. utility patent application, effectively addresses a recognized humanitarian issue;*
  - a. *What technologies does this application concern? Each technology must be claimed in one or more U.S. utility patents or pending U.S. utility patent applications to be eligible for this program. Please provide all patent or patent application numbers with a brief description of each technology.*



Mouse Mischief is a plug-in to Microsoft PowerPoint 2010 and Microsoft Office PowerPoint 2007, which allows teachers to create interactive classroom lessons. Using the plug-in with an installation of PowerPoint and from five to 25 individual computer mice, Mouse Mischief provides the ability for a classroom instructor to insert interactive questions, polls, and drawing activity slides into lesson presentations. Students can actively participate in these lessons by using their own mice to click, circle, cross out, or draw answers on the classroom screen. By enabling each

student to interact directly and in real time with the lesson, Mouse Mischief-based lessons easily engage and excite students. Mouse Mischief also improves classroom management by providing immediate feedback to the teacher on each individual student’s responses, and improves overall classroom participation.

Features of Mouse Mischief form the subject of one issued U.S. patent (USPN 7,712,041, issued May 4, 2010), and one continuation patent application (Publication No. 2010-0180210), both entitled “Multi-User Multi-Input Desktop Workspaces and Applications.” These two patent filings relate to shared, multi-input applications. Prior to the invention, sharing a single computer’s resources across multiple users typically involved continually minimizing and/or maximizing applications without changing user session parameters. Using such techniques to divide-up resources of a single computing device across

multiple users can be inefficient, prone to user error, insecure, and suboptimal in many other ways. By contrast, the Mouse Mischief invention provides easy to use multi-user multi-input desktop workspaces and applications. The multiple workspaces are presented on a single display desktop area (e.g., on a projected display or large monitor). The desktop area is designed for multiple users to provide in-parallel inputs (using multiple mouse input devices) and specify workspace access restrictions.

- b. What recognized humanitarian issues are these technologies (or products derived from these technologies) being used to address?*

The Mouse Mischief technology provides a way for multiple participants to interact together with an application displayed on a computer's display using their separate individual mouse input devices that remain interconnected (e.g., via USB hubs) as peripherals to the computer. The technology enables one user (such as a teacher) to manage the interactivity of other users (e.g., students) with the application. The technology separately tracks the input actions of the participants, which enables reporting of an individual participant's responses in activities such as a poll or quiz to the teacher. Various case studies (available at MM case studies) demonstrate the classroom effectiveness at improving focus, student leadership skills and interest, and aids teachers to maintain engagement of larger class sizes while covering more material.

Many schools – particularly those in impoverished areas – face teaching tool constraints due to lack of financial resources. This can lead to fewer teachers being assigned responsibility to teach ever larger size classes. Further, schools in financially disadvantaged areas can ill afford the cost to provision separate computers to individual students. Even if a separate computer per student were feasible for these schools, it is often technically difficult or impractical to coordinate a lesson activity with all students in the classroom on separate per-student computers.

Even further, communities that have experienced major natural disasters often also experience the destruction of schools and their classroom equipment. These disaster-stricken communities often must devote available funds to rebuilding the schools and classrooms, and may not have resources to replace lost and destroyed computers.

- c. How do these technologies (or products) effectively address these issues? What other remedies for these issues are currently available, and how do these technologies (or products) compare to them?*

The Mouse Mischief technology provides a lower cost and more effective alternative for teaching large size classrooms. Using Mouse Mischief, multiple students interact together with a teacher's lesson presentation on a computer projected display, each using their own mouse interconnected (e.g., via USB hubs) with the computer.

There are several previous initiatives that seek to provision computers to

It is estimated that the Humanitarian Award Application will take 4 hours to complete. Failure to provide this information may delay or prevent processing of your application, reducing the time burden to the Chief Information Officer, USPTO, PO Box 1450, A



disadvantaged students in impoverished communities, including perhaps most famously the “one laptop per child” program. The Mouse Mischief technology provides benefits over such programs in that only a single classroom computer is needed, which can be more easily maintained, and may be more easily protected from theft. Further, the Mouse Mischief technology is believed to provide a more effective learning experience, which allows teachers to engage larger size classes, cover more material, maintain student focus in lesson activities, and better monitor students’ learning achievement. By providing a lower cost and more effective computer-based teaching experience, Mouse Mischief better prepares students who otherwise would lack exposure to computer education to compete in the increasingly computerized global workforce.

- d. Were all of the patents and patent applications in part (a) either in force or pending during the time of the applicants’ actions described in this application?*

Yes, the patent applications were filed with a priority date of June 20, 2006. The technology was first made available in the Windows MultiPoint Mouse SDK in December 2006. Mouse Mischief is now available as a no cost download plug-in to Microsoft PowerPoint 2010 and Microsoft Office PowerPoint 2007.

- 2. Target Population – the actions described in this application target an impoverished population affected by the humanitarian issue; and*
- a. Which populations are your actions described in this application targeting?*

The target population for Mouse Mischief includes the schools or other academic institutions in developing countries, and also impoverished and disaster-stricken communities. In particular, the Mouse Mischief plug-in is provided as a no cost download to educators. Free sample lessons are also made available for download at the Mouse Mischief web site (<http://www.microsoft.com/multipoint/mouse-mischief/en-us/learn-more.aspx>).

- b. How do these populations qualify as impoverished?*

Mouse Mischief has been deployed to classrooms in developing nations worldwide, including El Salvador, Nairobi, Kenya, Sultan, and India as featured in customer story videos available for viewing at the web site (<http://www.microsoft.com/multipoint/mouse-mischief/en-us/learn-more.aspx>).

- c. How are these populations affected by the humanitarian issues described in part (i)?*

Prior to the deployment of Mouse Mischief, the schools in these communities lacked adequate financial resources to provide computers for individual students in classrooms and had very high student to computer ratios. The Mouse Mischief deployments in these schools provided computer-based education experiences to the students at reduced cost, and with more effective and engaging group interaction experience.

3. *Demonstrated Impact – the applicants’ actions have significantly increased application of the technology that benefits the impoverished population by addressing the humanitarian issue.*
- a. *How are the technologies (or products) described in part 1 used by the impoverished populations in part 2(a) to address the humanitarian issues from part 2(c)?*

The web site for Mouse Mischief is at <http://www.microsoft.com/multipoint/mouse-mischief/en-us/learn-more.aspx>. The site contains several customer story videos showing the product’s deployment in academic settings in several developing nations, including schools in areas with higher incidence of poverty.

- b. *What actions have the applicants taken to increase use of the technologies (or products) described in part 3(a) above? Please explain what actions the applicants named on this application have taken themselves, and how those actions (either directly or through further action by other parties) have led to increased use.*

The Mouse Mischief plug-in is provided as a no cost download to educators. Free sample lessons are also made available for download at the Mouse Mischief web site. Microsoft also makes available free 60-day trial copies of Office 2010. Microsoft, through its charitable giving campaign, has donated copies of Office (for which Mouse Mischief is an add-on) and other computer products to schools in impoverished and disaster-afflicted areas. Microsoft also offers volume licenses of Office to schools at reduced cost, as well as a no-cost Office 365 version option (for both of which Mouse Mischief is a free add-on). See the Microsoft in Education site at <http://www.microsoft.com/education/en-us/Pages/index.aspx>. Finally, Microsoft conducts outreach programs to encourage deployment of Mouse Mischief to schools in disadvantaged communities, such as via the Mouse Mischief web site.